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Ministry of Forests and Lands

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Report of the Ministry of Forests

Fiscal Year Ended March 31, 1986

Province of British Columbia
Ministry of Forests and Lands

Honourable Jack J. Kempf, Minister

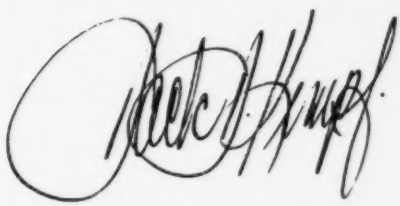
October 1, 1986

Lieutenant Governor of British Columbia in Council
Parliament Buildings
Victoria, British Columbia

May It Please Your Honour:

Herewith I respectfully submit the Annual Report of the Ministry of Forests for the year ended March 31, 1986.

Yours truly,



Jack J. Kempf
Minister of Forests

September 30, 1986

The Honourable Jack J. Kempf
Minister of Forests and Lands
Parliament Buildings
Victoria, British Columbia

Sir:

I have the honour to submit the Annual Report of the Ministry of Forests for the year ended March 31, 1986.

Yours truly,

R. D. Flitton
Deputy Minister

The Ministry of Forests of the Province of British Columbia

The Ministry of Forests is responsible for managing the forest and range resources of the Province of British Columbia.

The purposes and functions of the ministry are specified in Section 4 of the *Ministry of Forests Act*. They are to:

(a) encourage maximum productivity of the forest and range resources in the Province;

(b) manage, protect and conserve the forest and range resources of the Crown, having regard to the immediate and long term economic and social benefits they may confer on the Province;

(c) plan the use of the forest and range resources of the Crown, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the Crown and with the private sector;

(d) encourage a vigorous, efficient and world competitive timber processing industry in the Province; and

(e) assert the financial interest of the Crown in its forest and range resources in a systematic and equitable manner.

The responsibilities and authorities of the ministry are defined in the following provincial legislation:

— *Ministry of Forests Act*, Revised Statutes, 1979, Chapter 272.

— *Forest Act*, Revised Statutes, 1979, Chapter 140.

— *Range Act*, Revised Statutes, 1979, Chapter 355.

— *Boom Chain Brand Act*, Revised Statutes, 1979, Chapter 33.

Twenty-three regulations further specify the authority of the ministry. Numerous other acts, administered by other agencies, also affect the use of forest and range resources. The ministry works cooperatively with these other agencies, as specified in various agreements and policies.

In addition to outlining the purposes and functions of the ministry, the *Ministry of Forests Act* requires that three important reports be prepared and considered by the government:

1) A forest and range resource analysis is required periodically, to describe in detail the resource's condition, management and future uses. This analysis enables the government to set overall priorities and long term objectives.

2) A five year forest and range resource program is required annually, to set schedules, methods and priorities for resource management and improvement. This program presents the government's resource management intentions.

3) An annual report is required, to review the use and management of the resource and the effects of the ministry's programs. It monitors the performance of the ministry with respect to the five year program.

The ministry is structured to decentralize authority to six forest regions and forty-six forest districts, as described in Section V of this annual report.

The ministry's activities, from growing timber and administering the timber harvest to providing recreation sites and fighting forest fires, are organized into nine programs, which form the basis of organization of this annual report.

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I. Deputy Minister's Message

This annual report reviews the accomplishments and expenditures of the Ministry of Forests for the fiscal year ended March 31, 1986. Performance is assessed by comparing the accomplishments and expenditures to the goals and forecast estimates in the *Five-Year Forest and Range Resource Program, 1985–1990*, which was submitted to the Legislative Assembly in March, 1985.

Ministry Expenditures and Revenues

Forecast expenditure for 1985/86 for the ministry was $356.4 million. As shown in Tables 1 and 2, actual expenditure by the ministry was $443.0 million, about 24 percent higher than forecast. The increase in expenditure, about $86.6 million, is almost entirely accounted for by the increase in Fire Suppression Program costs during the year. Other increases in expenditure were in the Finance and Administration Program ($6.1 million) and in the Silviculture Program ($11.5 million). These last two increases were largely offset by a decrease in expenditure ($14.3 million) in the Harvesting Program. Total ministry expenditure was 36 percent higher than in the previous year.

The composition of expenditure by the ministry is shown in Tables 3 and 4. Wages and salaries, for the third consecutive year, accounted for a decreasing share of total ministry expenditure, 36 percent compared with 42 percent two years ago. Private sector participation in ministry programs remained at approximately 40 percent of total expenditure. The remaining 24 percent was for materials, supplies and other operational expenses.

Credit against stumpage payable is given, under Section 88 of the *Forest Act*, to licensees who undertake approved activities, such as road construction and reforestation, on Crown forest land.

Total expenditures by the ministry, by source of funds, is shown as follows:

Ministry of Forests budget	$371.7 million
Credits against stumpage revenue	$ 71.3 million
TOTAL	$443.0 million

Revenue collected by the ministry is shown in Table 5. Forest revenue, before application of the credits under Section 88 of the *Forest Act*, was $209.0 million; range revenue was $1.3 million. In total, forest and range revenue amounted to $210.3 million, about 12 percent higher than in the previous year.

A brief description of ministry activities and accomplishments follows. More detailed discussion is in the program reports.

Administration and Resource Management

The timber harvest during the year was a record 78.9 million cubic metres (m^3), up almost 6 percent from that in the previous year. Of this volume, approximately 5.9 million m^3 was billed under the ministry's Small Business Enterprise Program.

Total seedlings planted were 116.6 million covering more than 106 000 hectares (ha) of Crown and private lands. The number of seedlings planted was about 4 percent fewer than those planted during the previous year due to cold weather at time of sowing and planting.

A new seed centre is near completion on ministry property at Surrey, British Columbia. This seed processing and storage centre will support the ministry's expanding planting program.

Additional funds were made available to the Emergency Bark Beetle Program to help control infestations in all six forest regions.

As required in the *Ministry of Forests Act*, the Minister tabled the *Five Year Forest and Range Resource Program, 1986-1991* in the Legislative Assembly. The five year program is the government's plan for managing the provincial forest and range resources.

In May 1985, the Minister and his federal counterpart signed the Canada-British Columbia Forest Resource Development Agreement (FRDA). The $300 million five year cooperative forestry agreement commits federal and provincial funds for planting not-satisfactorily restocked lands and for intensive forest management and related research activities.

Changes were made to the boundaries between the Vancouver and Prince Rupert Forest Regions to improve administrative efficiency.

The condition of forest land in British Columbia is summarized in Table 6. The area of land deleted from provincial forests during 1985/86 is shown in Table 7.

The Forest Industry in British Columbia

Output of the province's major forest products — pulp, newsprint and lumber — increased in 1985.

— Pulp production in British Columbia was 6 million tonnes. Market demand was strong throughout most of the year, but pulp prices

dropped, reflecting excess capacity and relatively large inventories of both domestic and foreign suppliers.

— Newsprint production in British Columbia was almost 1.5 million tonnes, up 15 percent from that of the previous year. Demand for newsprint remained high during the year. Prices fell during the latter part of the year, due to strong competition from Scandinavian suppliers. The strong value of the United States dollar attracted foreign supplies to all United States markets, including the western United States which is the main market for newsprint from British Columbia.

— Lumber production in British Columbia was 14 billion board feet. Lumber shipments to the United States, the major market for British Columbia, increased by approximately 7 percent, reflecting continued strength in the United States residential construction industry. Despite record lumber consumption in the United States, lumber prices remained relatively low throughout most of 1985, as the supply of lumber from producing regions in North America more than adequately met the level of demand.

Forest companies in British Columbia reported improved financial results, with almost all companies realizing higher sales volume and profits from their operations.

Despite the failure in 1983 of its petition to the United States government to impose a countervailing duty on imported Canadian lumber, the Coalition for Fair Lumber Imports, a coalition of United States lumber producers, continued to lobby the United States government and its representatives for some action to reduce the Canadian share of the United States lumber market.

Since that time, legislation in the form of an omnibus trade bill has been passed in the United States House of Representatives and legislation is now before the United States Senate to restrict Canadian lumber imports into the United States. Consultative meetings were held in the United States and Canada between representatives of the two countries in an attempt to resolve outstanding issues. In June 1986, the coalition of United States lumber producers again petitioned the International Trade Commission (ITC), an agency of the United States Department of Commerce, to impose a countervailing duty on Canadian lumber products. The petitioners allege that the Canadian lumber producers benefit from government subsidies.

Throughout the year, ministry staff made numerous representations to the ITC on behalf of the province. The ministry, with other public agencies and private associations across Canada, was also involved in efforts to counter the allegations in the petition.

The 1985/86 Forest Fire Season

Overwinter drought conditions and a relatively rain-free spring brought about an extremely severe fire season during 1985/86, especially in the southern portion of the province. The severity of the fire season was reflected in the number of fires (more than 3,600, 50 percent greater than the 10-year average), and in damage to the forest. The area burned was 236 000 ha; timber damaged was 18 million m^3. Both the area burned and the timber volume damaged were more than 200 percent greater than the 10-year average.

In addition to the normal review process to assess the fire season, the Minister established Forest Fire Review Boards to evaluate the actions on some of the major forest fires. The review boards received submissions from industry, community representatives, and concerned groups and individuals. All aspects of forest fire protection activities were considered, including personnel training, initial fire attack techniques and fire suppression procedures.

The ministry is incorporating the boards' recommendations to further improve the province's overall forest fire protection capabilities.

R. D. Flitton
Deputy Minister

II. Program Reports

Management Program

The Management Program provides direction, control and information services for the ministry. The program includes the Executive, Information Services Branch and Strategic Studies Branch in Victoria; regional managers and regional staff managers in the forest region offices; and district managers, operations superintendents and support services supervisors in the forest district offices.

Forecast expenditure for 1985/86 for the Management Program was $13.3 million; actual expenditure was $13.4 million, about 13 percent more than in the previous year. The Management Program accounted for 3 percent of ministry expenditure in 1985/86.

- During the year, the administration of the Queen Charlotte Islands and Mid-Coast Forest Districts was transferred from the Prince Rupert Forest Region to the Vancouver Forest Region. This realignment of regional boundaries will help to improve the ministry's effectiveness in resource administration.
- In accordance with Sections 8 and 10 of the *Ministry of Forests Act*, the ministry prepared the *Five Year Forest and Range Resource Program, 1986-1991*, and the *Annual Report, 1984/85*. The five year program is the government's plan for managing the provincial forest and range resources. The annual report gives an account of ministry expenditures and accomplishments.
- Extensive negotiations during 1984/85 resulted in the signing of the Canada-British Columbia Forest Resource Development Agreement 1985-1990 (FRDA), in May 1985. This $300 million, five year, cooperative forestry agreement will provide funds for planting not-satisfactorily restocked forest lands in the province and for intensive forest management and related research activities.
- In March 1986, the Forest Stand Management Fund was established to fund silviculture and related activities to enhance the provincial forest resource. Matching contributions to this fund are anticipated from the federal government, forest industry, municipalities and forest sector trade unions.
- In response to the severe 1985/86 fire season, ministry staff prepared an information program to enhance the public's awareness of the forest fire situation in the province. This program provides a wide range of forest fire related information to media, local communities and the general public.

Finance & Administration Program

The objective of the Finance and Administration Program is to provide the ministry with efficient financial control and administrative support. This includes financial management, electronic data processing systems, personnel services, staff safety and related paralegal services, and technical and equipment services.

Forecast expenditure for 1985/86 for the Finance and Administration Program was $35.6 million; actual expenditure was $41.8 million, about 22 percent less than in the previous year. This decrease in expenditure was due mainly to the reallocation of rental expenditures to other programs. The Finance and Administration Program accounted for 9 percent of ministry expenditure in 1985/86.

The responsibility for activities in Valuation Branch, including the scaling of and billing for harvested timber, was transferred to the Finance and Administration Program.

The accomplishments of the Finance and Administration Program during 1985/86 include the following:

Personnel Services

- Progress was made in improving the ministry's human resource management information system. The system provides access and distribution of selected personnel information for use within the ministry.
- The ministry continued its support of women's program initiatives. The range of women's programs covers such diverse subjects as career planning and interviewing techniques.

Financial and Related Administrative Services

- Following an extensive analysis of the ministry's accounts receivable records, a ministry Credit Management Program was developed. This program is designed to improve the administration of the ministry's accounts receivable.
- A ministry policy on contract administration was developed and approved. The new policy outlines the purposes, rules and procedures pertaining to ministry purchases of goods and services from the private sector. Staff training to implement the new policy commenced during the year.
- A financial and administrative procedures manual was prepared and published to support activities in the ministry's Fire Suppression Program. The manual is a direct result of the recommendations of the Forest Fire Review Boards which were established by the Minister in October 1985, to review actions on some of the major forest fires in 1985.

Computer Systems Services

- Systems Services Branch introduced to ministry branches an information system for budgeting purposes.
- Reviews of the ministry's computer systems are regularly undertaken. During the year, a major review was completed for the Inventory Section of Planning and Inventory Branch. Other systems which were reviewed included the following:
  — Forestry Executive Information System
  — History Records System
  — Fire-fighting Cheque Issue System

Technical and Equipment Services

- Five forest district offices were improved or expanded during 1985/86.
- Planning commenced to establish ministry warehouse centres at Abbotsford, Kelowna and Prince George, replacing the present six depots for storage of forest fire-fighting equipment and related supplies.

Timber Valuation, Timber Scaling and Related Activities

- A new simplified timber appraisal system was introduced for the coast forest industry in January 1986. A parallel system will be introduced for the interior forest industry during 1986.
- The Section 88 Efficiency Task Force completed a review to streamline some of the administrative procedures relating to Section 88 of the *Forest Act*.
- Except for a few special situations, all approved Section 88 projects are now subject to public tender by bidding rather than by negotiated contracts with forest licensees. This change is meant to encourage participation in forestry-related work from a larger number of interested parties.
- A review of the administrative and data processing procedures of the ministry's Harvest Data Base computer system was completed. Improvements pertaining to quality control, billing procedures and other related aspects of the system were recommended and are being implemented.

Harvesting Program

The objective of the Harvesting Program is to make timber available to the forest industry in a manner consistent with the province's objectives for the use of forest resources, including the generation of revenue. The program provides for maintaining an inventory of harvestable timber, planning harvest levels, engineering and road building to access timber, managing timber tenures and cutting permits, and carrying out research related to harvesting.

Forecast expenditure for 1985/86 for the Harvesting Program was $94.0 million; actual expenditure was $79.7 million, about 8 percent more than in the previous year but 15 percent less than forecast. Allocation to the Harvesting Program was reduced $12.7 million during the year. The Harvesting Program accounted for 18 percent of ministry expenditure in 1985/86.

Forest revenue from the Harvesting Program, based on gross stumpage and miscellaneous sources, was approximately $209 million, about 12 percent more than in the previous year. Stumpage prices remained at relatively low levels for most species throughout 1985/86.

The responsibility for timber valuation, including the scaling of and billing for harvested timber, was transferred from the Harvesting Program to the Financial and Administration Program.

Timber Harvest

- A volume of 78.9 million m^3 was harvested in 1985/86, an increase of 6 percent over that of the previous year. Details of the timber harvest, by land status, tree species and forest region are shown in Tables B-5 and B-6.
- The area harvested in 1985/86 was more than 230 000 ha, as shown in Table B-7. The total provincial area harvested increased by 7 percent over that of the previous year.
- The volume of log exports, shown in Table B-8, was slightly more than 2.6 million m^3, a decrease of more than 20 percent from that of the previous year. This volume represented about 3.5 percent of the total timber harvested.

Small Business Enterprise Program

- Activity in the ministry's Small Business Enterprise Program is shown in Tables B-4 and B-9. The volume harvested and billed was 5.9 million m^3, an increase of more than 25 percent over that of the previous year. This volume is about 7 percent of the provincial harvest.
- A Small Business Enterprise Account was established within the government's Consolidated Revenue Fund. The purpose of this account is to ensure continuity of funding for forest management and related forestry activities.

Licence Administration

- The number of licences administered during the year and the timber volumes committed to those licences are shown in Tables B-10 and B-11. The *Forest Act* authorizes ten forms of rights to Crown timber, ranging from long term supplies for large timber processing operations to shorter term supplies for individuals and small scale operations:
  - — Tree farm licences provide an allowable annual cut (AAC) from a specific area consisting of Crown forest land and, in many cases, private land. They are for a term of twenty-five years and can be replaced if responsible forest management is carried out by the licence holder.
  - — Woodlot licences are similar to tree farm licences but refer to a smaller land base. They are intended for management of private land along with Crown land.
  - — Three other types of licences provide AACs from Crown land but for a shorter duration: timber sale harvesting licences, which are being phased out, forest licences, and timber sale licences (major).
  - — A variety of other licences, such as timber sale licences (minor), free use permits and licences to cut, confer rights to harvest timber from specific areas for short durations.
- During the year, a large area of Tree Farm Licence No. 1 was deleted and transferred to the adjoining timber supply area (TSA). Three companies competed successfully for new forest licences involving these transferred areas.

Engineering, Roads and Bridges

- During 1985/86, construction of more than 650 km of roads brought the provincial inventory of roads under the jurisdiction of the ministry to approximately 28 000 kilometres (km). This inventory represents a major public asset to provide access to provincial forest and range land. Improvements, upgrading and maintenance activities extended over nearly 3 000 km of roads.
- The number of bridges and large sized culverts under the jurisdiction of the ministry increased to about 2,400. These bridges and culverts are an integral part of the ministry's network of roads.

Silviculture Program

The objectives of the Silviculture Program are to restock denuded forest land and to improve the value and productivity of forest stands through silvicultural treatments. Denuded land is restocked through planting and natural seeding. Site preparation is used to promote natural restocking and to facilitate planting. Brushing and weeding are carried out on some plantations to ensure unimpeded growth of seedlings. Spacing, fertilization and conifer release are among the treatments applied to forest stands to improve their value and productivity.

Forecast expenditure for 1985/86 for the Silviculture Program was $123.6 million; actual expenditure was $135.1 million, about 22 percent more than in the previous year. Increased activities in seed sowing, site preparation, the Small Business Enterprise Program (SBEP) and the implementation of the Forest Work Activity Program (FWAP) accounted for the increase in program expenditure. The Silviculture Program accounted for about 30 percent of ministry expenditure in 1985/86.

During 1985/86, there were 116.6 million seedlings planted in the province, distributed between Crown and private forest lands as follows:

Seedlings Planted During 1985/86

Land Status	Millions of Trees	Hectares Planted
Crown Land	111.7	101 442
Private Land	4.9	5 367
TOTAL	116.6	106 809

The goal of planting 134.0 million trees on Crown land for 1985/86 was not achieved due to extremely cold weather conditions during sowing at some of the nurseries and unsuitable weather during the planting season. Approximately 85 percent of the planting on Crown land was on land recently denuded (basic silviculture); the remainder was on Crown land which has been denuded and untreated for more than a few years (intensive silviculture).

During the year, additional funds were made available for expanded silviculture activities:

- The Canada-British Columbia Forest Resource Development Agreement (FRDA) was signed in May 1985. Under the terms of the agreement, the federal and provincial governments contribute funds for the enhancement of the provincial forest resource base. This $300 million, five year program will fund activities in intensive forest management: backlog reforestation; site rehabilitation; and related silviculture and research activities. Activities in the Silviculture Program funded by this agreement are included in this report.
- The Canada Works Program, the Canada Job Strategy Program, and the Katimavik Program, all of which are funded by the federal government, provided funding for additional silviculture work on Crown land. Staff of the ministry and forest companies assisted in the administration of these programs.
- The ministry, in conjunction with the Ministry of Human Resources, initiated the Forestry Work Activity Program (FWAP). This program involved hiring, training and supervising people who had been on provincial social assistance. About 850 persons were involved in this program and more than 63,000 person-days of employment were generated in the 32 forest districts where the FWAP was active. Expenditure for this program was $5.4 million.

The Silviculture Program consists of four components: basic silviculture, intensive silviculture, nursery operations and seed operations.

Basic Silviculture

This component of the Silviculture Program includes activities to restock the on-going, current denudation of forest land caused by timber harvests, fire and pests. Activities include surveying, site preparation, planting, and brushing and weeding.

The goals and accomplishments in basic silviculture on Crown forest land for 1985/86 were as follows:

Basic Silviculture
Accomplishments on Crown Land, 1985/86

Activity	Goals[1]	Accomplishments[2]
	(hectares)	
Surveys[3]	360 000	318 035
Site Preparation	110 000	91 421
Planting	91 000	86 782
Brushing and Weeding	14 000	15 524

[1] *Five-Year Forest and Range Resource Program, 1985-1990.*
[2] Ministry funds only. Additional accomplishments are presented in Table C-9.
[3] Includes surveys of natural restocking and planting on recently denuded land.

- During 1985/86, ministry and company staff surveyed close to 318 000 ha of recently denuded land of which approximately 90 000 ha (about 28 percent) had been planted. The results of these surveys will be used to identify and plan for future silviculture treatments.
- Recently denuded areas are inspected to determine if they require any site preparation to promote natural restocking or to prepare for planting. Site preparation to promote natural reforestation was carried out on approximately 20 000 ha; site preparation for planting was carried out on more than 70 000 ha. More than 50 percent (by area) of site preparation activity was carried out in the Prince George Forest Region. To promote seedling growth in the colder soils of the northern part of the province, site preparation is undertaken to expose mineral soil and control competing vegetation. This increases overall soil temperature and promotes root growth by increasing the availability of nutrients and water.
- In 1985/86, approximately 94 million trees were planted on 87 000 ha of recently denuded Crown forest land. Although fewer trees were planted than in the previous year, a greater area was reforested, due in part to the implementation of new stocking standards. An additional 4.9 million trees were planted on about 5 000 ha of recently denuded private forest land.
- Brushing and weeding treatments to control undesirable vegetation in young stands were carried out on close to 15 500 ha in 1985/86. Funds from other sources enabled an additional 3 000 ha to be treated. Brushing and weeding treatments continue to be concentrated in the Vancouver Forest Region (approximately 65 percent of total area treated) where brush encroachment on very productive sites is severe. Treatments included the judicious use of herbicides, which is considered a viable method of brush control.

Intensive Silviculture

Intensive silviculture includes activities to restock the backlog of forest land which has not restocked adequately, and to improve the value and growth of immature forests. Activities include surveying, backlog planting, spacing, fertilization, site rehabilitation, thinning and conifer release.

The goals and accomplishments in intensive silviculture on Crown forest land for 1985/86 were as follows:

Intensive Silviculture
Accomplishments on Crown Land, 1985/86

Activity	Revised Goals[1]	Accomplishments[2]
	(hectares)	
Surveys[3]	83 948	94 913
Backlog Planting	16 746	14 660
Spacing[4]	3 187	4 648
Fertilization	0	17
Site Rehabilitation	16 438	15 968
Conifer Release	0	1 037
Thinning	0	196

[1] *Five-Year Forest and Range Resource Program, 1985–1990.* The revised goals are the result of deliberations by the Management Committee of the Canada-British Columbia Forest Resource Development Agreement (FRDA).
[2] Ministry and the FRDA funds. Additional accomplishments are presented in Table C-10.
[3] Includes surveys of natural restocking and planting on Crown land denuded for more than a few years, and stand tending surveys.
[4] Includes juvenile spacing and sanitation spacing.

- During 1985/86, ministry staff surveyed almost 95 000 ha of backlog lands, about 20 percent of which were plantations. Stand tending surveys were also carried out to determine specific treatments required.
- Restocking backlog lands is one of the ministry's most important activities. In 1985/86, more than 18 million trees were planted on approximately 14 600 ha. A portion of this activity was funded by the federal government.
- Approximately 22 000 ha of Crown land were treated to improve the value and productivity of forest stands:
  - The removal of selected trees in immature stands (spacing) encourages growth in the remaining trees. During 1985/86, spacing activity was undertaken on more than 4 600 ha. Additional spacing activies were funded by the FWAP (1 700 ha) and federal government programs (4 500 ha).
  - Fertilization of new plantations was carried out on a limited basis. Fertilization is usually undertaken to enhance seedling growth by correcting soil nutrient deficiencies.
- Prior to planting, site rehabilitation is required on the province's backlog of not sufficiently restocked (NSR) and non-commercial brush (NC Brush) lands. Site rehabilitation was carried out on approximately 16 000 ha during the year.

- Conifer release was carried out on approximately 1 000 ha. Federal government programs funded an additional 150 ha of this activity.

Nursery Operations

The nursery operations of the Silviculture Program provide the seedlings required for basic and intensive silviculture.

Total sowing in 1985/86 was for 182 million seedlings, composed of 107 million seedlings in ministry nurseries and 75 million seedlings in private nurseries. Close to 75 percent (about 133 million seedlings) were sown in containers while the remainder were sown as bareroot stock.

Ministry Nurseries

- To compete successfully with brush on productive sites, larger and more mature planting stock must be used. To increase the supply of larger planting stock, the ministry's container operations are expanding to produce more 2-year (2+0), rather than 1-year (1+0), container seedlings. The 2+0 container stock is also being used to replace transplanted seedlings. During the year, ministry nurseries sowed for 22.9 million 2+0 container seedlings and transplanted 11.0 million seedlings.
- During the 1985/86 planting season, 73.0 million seedlings for planting were shipped from ministry nurseries. Cold storage capacity was increased to support the enlarged provincial nursery program. Funds for the expansion were from the provincial portion of the FRDA.
- Open compounds were constructed at several ministry nurseries as part of the continuing effort to improve facilities for producing container stock.

Private Nurseries

- During the year, private nurseries sowed for 75 million seedlings for delivery in 1985/86 and 1986/87. About 20 percent of the seedlings were sown by nurseries which are owned by forest companies. Funding for these nursery operations came, in part, from credits to stumpage payable, as provided for in Section 88 of the *Forest Act*. The remaining 80 percent were produced by commercial nurseries. More than 90 percent of the seedlings produced by private nurseries are container stock.
- Private nurseries expanded their production of 2+0 container stock during the year. They also produced about 5.5 million transplant seedlings. For the 1985/86 planting season, private nurseries shipped a total of 42.2 million seedlings for planting.
- Competitive bidding is now more prevalent than negotiated contracts for nursery work. With funds from the FRDA, the ministry awarded fifteen contracts worth $3.2 million for the delivery of 35 million seedlings.

Seed Operations

The seed operations component of the Silviculture Program provides seed for all nurseries. Seeds are collected from both seed orchards and natural stands.

- A moderate crop occurred in 1985/86 in both natural stands and seed orchards from which about 4 500 kilograms (kg) of seed were added to the provincial seed inventory. Seed withdrawals for the year were approximately 4 400 kg, leaving a seed inventory for all native species at March 31, 1986 of about 43 000 kg.
- Seven new seed orchards were established during the year, bringing the provincial total number of orchards at March 31, 1986 to forty-six, covering 134 ha. The ministry cooperatively funds thirty-eight of these orchards; of these, twenty-one are funded by credits to stumpage payable, as provided for in Section 88 of the *Forest Act*. The remaining eight orchards are privately funded.
- Tree Improvement Councils, one on the coast and one in the interior, were active in advising the Chief Forester on the cooperative tree improvement and seed orchard programs. Members of the councils are from the forest industry and the ministry.
- A new provincial seed centre at Surrey is nearing completion. The centre will serve as the main seed processing and storage facility for the ministry's expanded planting program.

Research Program

The objectives of the Research Program are to stay abreast of technological developments in forest resource management and related fields, find solutions to problems, and assist in putting improved resource management techniques into practice.

Forecast expenditure for 1985/86 for the Research Program was $9.4million; actual expenditure was $9.4 million, about 5 percent higher than in the previous year. The Research Program accounted for 2 percent of ministry expenditure in 1985/86.

The Research Program consists of five components: silviculture, biometrics and systems, ecology and earth science, tree physiology and tree improvement.

Silviculture

To improve the value and productivity of forest stands, silviculture research focussed on a number of forest management activities: development of growth-and-yield tables, restocking forest land (backlog reforestation), fertilization treatments, and site rehabilitation.

- The main thrust of the growth and yield program was in the production of managed stand yield tables, site index curves, and interim yield estimates. Accomplishments during the year included:
  - — publication of yield tables for coastal Douglas fir;
  - — publication of yield tables (interim) for lodgepole pine based on a wider range of stocking levels;
  - — completion of yield tables (first approximation) for interior white spruce.
- Stand management research on the coast focussed on plot remeasurement and data analysis of various growth and yield experiments, including the Forest Productivity Committee installations. In the interior, funds from the provincial portion of the Forest Resource Development Agreement (FRDA) were used to establish a large-scale, long-term study on the effects of initial spacing and subsequent thinning on lodgepole pine, and to design a similar study for white spruce.
- Fertilization of interior stands is expected to commence in the near future. To support this operation provincial funds from the FRDA were used to complete scheduled measurements of tree response to fertilizer treatments in existing research installations, and to establish more nutrition screening trials.
- Further advances were achieved in site rehabilitation research. For example, hydroseeding was applied on several interior and coast locations to assess its effectiveness in controlling soil erosion on exposed slopes.
- Several studies of backlog regeneration were initiated under the FRDA. These studies were concerned primarily with improving techniques for site preparation; improving the quality of the planting stock; determining the most suitable period to plant; assessing the effectiveness of restocking systems; and evaluating different methods to control competing vegetation on sites in the northern interior of the province.

Biometrics and Systems

- Consultation and analytical support was provided for other ministry programs:
  - — Sampling techniques were developed for assessing spruce leader weevil damage and root rot infestation.
  - — Progress was made in designing a simulation model to predict the effects of catastrophic pest infestation on wood supply.
  - — A new simulation approach was devised to optimize production in nurseries.
- Biometric seminars were given which provided a useful forum for the exchange of ideas on a wide variety of topics.

Ecology and Earth Science

- Approximately 95 percent of British Columbia has now been mapped and classified to the biogeoclimatic subzone level. Reports and field guides are available for most of the mapped areas. A report titled *Biogeoclimatic Ecosystem Classification in British Columbia* was completed. Training sessions in the use of this classification system were continued in the forest regions and Victoria headquarters. The classification system's ecological forest and range management interpretations continue to be developed and revised.

- The Fish/Forestry Interaction Program addresses the effects of timber harvesting on fishery resources. Several reports were completed during the year. Topics included fish habitat protection in steep slope logging; rehabilitation of streams; and effects of landslides on fish habitat. This program has been extended for another year.
- A handbook was prepared to encourage proper selective logging practices on mule deer winter range.
- Studies were continued on the impact of forest harvesting on water yield and quality.

Tree Physiology

- Research continued into ways to increase the production of high-quality seed and to improve nursery efficiency:
  - — Investigations focussed on: treatments to improve seed germination and performance; nursery practices to improve the quality of seedlings for planting; technology to grow seed orchard trees in portable containers; and methods to control flowering and pollination.
  - — Seedlings in nurseries were tested extensively to see if their quality, after lifting and storing, can be predicted by root growth and tolerance to cold temperatures.
  - — After field planting, spruce seedlings were tested to assess the factors which were important in ensuring their successful establishment.

Tree Improvement

- The application of breeding program results remains a priority in tree improvement research. Selections of the most desirable genetic crosses in the coastal Douglas-fir breeding program continued. A review of the western hemlock breeding program was completed.
- Research focussed on developing techniques for early selection and transfer of genetic gains. Activities included parent-tree selection, cross-breeding and the establishment of test sites.
- Seed zone boundaries of coastal Douglas-fir were redefined. Gene archives were maintained and tree improvement research was carried out at the Cowichan Lake, Kalamalka, and Red Rock Research Stations.
- Clonal techniques can enhance the early transfer of genetic gains to reforestation. Analysis and basic research in this area is beginning.

The results of experiments conducted under the Research Program are published each year in *Forest Research Review*.

Forest Protection Program

The primary objective of the Forest Protection Program is to protect the forest and range resources of the province from damage by fire, forest insects and diseases. Other important concerns are the protection of life and property, the preservation of other natural resource values, and the use of prescribed fire to support resource management objectives.

Forecast expenditure for 1985/86 for the Forest Protection Program was $24.9 million; actual expenditure was $25.4 million, about 20 percent more than in the previous year. The increase in expenditure resulted from incorporating the Bark Beetle Emergency Fund into the Forest Protection Program. The Forest Protection Program accounted for 6 percent of the ministry expenditure in 1985/86.

The 1985/86 fire season was characterized by abnormal weather patterns which produced the most severe forest fire season in recent memory. These conditions were reflected in the number of fires, area burned and volume of timber damaged, as indicated by the following:

	1985/86 Fire Season	10-Year Average	Percent Difference
Number of Fires	3,603	2,392	+ 51
Area Burned (ha)	236 252	76 283	+210
Timber Damaged (000 m^3)	17 972	5 848	+207

The Forest Protection Program consists of five major components: administration; fire management; pest management; air operations; and planning, development and research.

Administration

The Administration component provides office staff and related services at forest region and forest district levels, and at Victoria headquarters.

Fire Management

The Fire Management component of the ministry's Forest Protection Program includes all activities relating to fire fighting preparedness, forest fire prevention and organizational support for forest fire suppression. The goal for fire management activities, as indicated in the *Five-Year Forest and Range Resource Program, 1985–1990*, is to limit annual area burned to 69 000 ha and the volume of timber loss to 2.6 million m^3. Because of the extremely severe fire season in 1985/86, these goals were not met.

- The ministry has an extensive network of forest fire detection systems. Fifty-five primary lookouts and forty secondary lookouts were staffed during 1985/86, accumulating about 11,000 person-days of surveillance. More than 10,600 hours of air patrols were flown. The ministry's lightning location system performed well in detecting and locating lightning strikes. Public support in the detection and reporting of forest fires is important. This assistance was encouraged with media advertisements and the Zenith 5555 toll-free number.
- In addition to the normal review process to assess the fire season, the Minister established Forest Fire Review Boards to evaluate the actions on some of the major forest fires which occurred during the year. The review boards received submissions from industry, community representatives, and concerned groups and individuals. All aspects of forest fire fighting were reviewed: fire fighting preparedness, initial fire attack capability, forest fire suppression measures and other related activities. As a result of the review and the boards' recommendations, additional crews, equipment and improved procedures have been introduced. Four new regional helitack crews will be added in 1986 to the existing complement of two regional crews. These crews are in addition to the rappel crews (based at Salmon Arm and Revelstoke) and the forest district firetack crews (located at most forest district offices). The regional helitack crews and rappel crews provide a highly mobile force of well trained initial fire attack personnel that can be relocated, on short notice, to high hazard, high risk areas in anticipation of fire action.
- The ministry's Fireline Certification Policy and Overhead Team Project, initially established in 1984/85, ensures that well trained and experienced crews are ready for the fire lines when needed.
- The use of prescribed fire for hazard abatement, silvicultural treatments, wildlife habitat improvement, range improvement and pest control is a major activity undertaken annually by the ministry. In 1985/86, 204 000 ha were treated, an increase of 17 percent over that of the previous year. The purposes for the prescribed fires were:

Treatment Purpose	Hectares Treated	Percent
Hazard Abatement	77 500	38
Silvicultural Treatment	64 400	32
Wildlife Habitat Improvement	34 000	17
Range Improvement	25 500	12
Pest Control	2 600	1
TOTAL	**204 000**	**100**

Pest Management

The objective of the Pest Management component of the ministry's Forest Protection Program is to reduce losses to the provincial timber base caused by insects and diseases.

- Surveys to detect insect infestations are regularly undertaken by the ministry. Often, these surveys are jointly carried out with other agencies, such as the Canadian Forestry Service. During the past year, these surveys detected significant increases in the extent of infestations by two defoliators: western spruce budworm and blackheaded budworm. The western spruce budworm infestation now covers more than 210 000 ha, primarily in the Kamloops Forest Region. Blackheaded budworm in the Vancouver Forest Region has defoliated more than 30 000 ha of forests, primarily in the southeast coastal areas of the Queen Charlotte Islands. The ministry will continue to monitor pest damage and infestation spread. The Canadian Forestry Service continues to provide technical support and cooperation in these matters.
- The Emergency Bark Beetle Program was established in the fall of 1984. It is a multi-year program and is expected to help reduce the spread of in-

festations and protect timber in beetle-prone timber stands. Expenditure for the program was $6.2 million for fiscal year 1985/86. Activities funded by this program included:

— aerial and ground surveys of infested stands;
— treatment of selected infested trees;
— construction of access roads to infested stands;
— harvesting of infested timber.

- Aerial surveys conducted in late summer and early fall of 1985 indicated that approximately 350 000 ha of forests were actively infested by bark beetles. About 95 percent of this area was pine stands infested by mountain pine beetle, the remainder by spruce beetle. Ground surveys conducted during early 1986 to assess over-winter beetle survival indicated that severe cold conditions have reduced beetle populations, particularly in the Cariboo and Prince George Forest Regions. In addition to the past winter's severe cold weather, agressive pest control actions have reduced beetle populations in many other areas of the province.
- Sampling for significant pest occurrences in second growth stands was carried out in several forest regions. A standard method to survey for *Pissodes strobi*, a pest of young spruce trees was developed. The survey method was used in the Prince Rupert Forest Region in stands which were deemed to be susceptible. Similar surveys are being planned for other areas of the province.
- With provincial funds from the FRDA several tree disease projects and related activities were completed:
  — a survey of pine stands in the Prince George TSA to assess dwarf mistletoe damage;
  — a root disease survey in the Merritt TSA;
  — a survey of subalpine fir in the Bulkley TSA to assess balsam bark beetle damage;
  — a field trial to assess techniques and costs of removing laminated root rot from coastal sites;
  — a review of methods for surveying pests in young stands; and
  — a review of ground surveying methods.

  Funds were allocated to all six forest regions to help control the most severe bark beetle infestations. Other activities included follow-up treatments of infested areas which were first treated in 1984/85.
- Two important pest management documents were produced during 1985/86. The first, entitled *Forest Insect and Disease Impacts in Timber Supply Areas*, lists current estimates of the effects of major pests on timber supply in the province. The other is the revised seven volume edition of the *Forest Pesticide Handbook of British Columbia*. Both documents will enhance capability in pest control and pesticide use.
- The ministry representative on the British Columbia Pesticide Control Committee reviewed applications for pesticide use and made recommendations to the Ministry of Environment. Of a total 721 applications, 299 were from the ministry, 259 were from the forest industry and 163 were from non-forestry users.

Air Operations

The ministry's aircraft operations are managed under the Air Operations component of the Forest Protection Program.

- Total expenditure in 1985/86 was $43.3 million, consisting of air operations ($0.80 million) and suppression flying ($42.5 million). Of the $42.5 million in suppression flying expenditure, $39.2 million (about 90 percent) was spent for air tanker flying, helicopter flying, aerial detection patrols (including infra-red fire scanning) and air transport and supply. The remaining $3.3 million was for air tanker base maintenance and development. Total expenditure was approximately 125 percent more than in the previous year.
- Air tankers were used to provide initial attack and support action on 851 forest fires (of more than 3,600) in 1985/86. It has been estimated that air tankers assisted ground crews in controlling an additional 130 fires.
- The ministry established a new dispatch office at Smithers and upgraded others at Cranbrook, Blue River and Salmon Arm.
- There were eight aircraft accidents in 1985/86. Regrettably, six fatalities and nine injuries resulted from these accidents.

Planning, Development and Research

The Planning, Development and Research component provides technical and related support for the ministry's Forest Protection Program. Its activities cover many areas of forest protection: fire ecology; use of prescribed fires in forest management; pest management in forest planning; information systems for fire and pest management; and the provincial lightning location system.

- The Northern Fire Ecology project concluded with the publication of the remaining reports for

the third study area, the northern portion of the Mackenzie TSA. These reports provide information on biogeoclimatic classification, forest productivity, and the effects of wildlife on forests in the study areas.

- A major project to evaluate the use of an infra-red scanner to map fire lines and to detect forest fires was conducted during the 1985/86 fire season. The project report, *DAEDALUS 1260 INFRA-RED SCANNING EVALUATION REPORT* concluded that the system was cost-effective for fire line mapping but that further evaluation was required on its effectiveness in forest fire detection. Such an evaluation will be conducted during the current fiscal year.
- A cooperative research project to study prescribed fires was undertaken by the staff of the ministry's Research and Protection Branches and the Pacific Forestry Centre, Canadian Forestry Service. The project was implemented to develop and test field techniques to monitor the effects of prescribed fires. The results of the project were published in *Field Handbook for Prescribed Fire Assessments in British Columbia: Logging Slash Fuels.* The techniques described in this handbook will be used to measure and document the impacts of prescribed fires and to improve field practices.
- During the year, three direction finders were added to the provincial lightning location system. As of March 31, 1986 the system had a network of eighteen direction finders. During the year, a study of the network's detection performance was undertaken. The study report, *Statistical Analysis of B.C. Lightning Data,* is being used to make improvements to the network.

Fire Suppression Program

The ministry's responsibility to minimize damage from wildfires burning in the province's forest and range land is carried out under the Fire Suppression Program. This program is closely linked to and supported by the Forest Protection Program, but is separately managed and funded.

- Expenditure for the Fire Suppression Program cannot be forecast accurately for a particular year, since it depends largely on unpredictable weather conditions. Forecast expenditure, based on long term averages, for 1985/86 was $46.5 million; actual expenditure was $129.4 million, or approximately 240 percent more than in the previous year. The Fire Suppression Program accounted for 29 percent of the ministry expenditure in 1985/86.
- In 1985/86, British Columbia experienced one of the most severe fire seasons in decades. This was brought about by overwinter drought and minimal rainfall during the early summer months throughout the province. In the southern half of the province, there were serious forest fires in Golden, Invermere and Cranbrook Forest Districts of the Nelson Forest Region; and the Chilliwack and Squamish Forest Districts of the Vancouver Forest Region. Lightning storms, without accompanying rainfall, were commonplace in the four southern forest regions. During the height of the fire season, fires threatened the safety of people in several small communities and towns.
- A total of 3,603 forest fires burned more than 235 000 ha. This represented a 50 percent increase in the number of fires and more than a 200 percent increase in the area burned by fires compared to the most recent 10-year average. The Nelson Forest Region experienced the largest increase in the number of fires (90 percent) and the largest increase in the area burned by fires (900 percent). It is interesting to note that, since 1912, British Columbia has experienced twelve fire seasons in which the area burned by forest fires has exceeded that in 1985/86. The most damaging fire season to date was in 1958 when more than 780 000 ha were burned.
- Despite the extremely severe forest fire conditions, professional and volunteer fire fighters made significant contributions to contain and limit the area burned and the resulting damage.

During peak fire fighting periods, more than 8,000 trained fire fighters were on the fire lines. Supporting these fire fighters were more than 150 helicopters, 21 air tankers, several hundred bulldozers, skidders, and other vehicles. Demands for equipment, supplies and manpower exceeded provincial reserves. However, the ministry's membership in the Canadian Interagency Forest Fire Centre allowed it to access many essential resources from other provinces, the Territories, and the United States.

- Forty-six campfire closures were imposed and thirty-four forest use restriction orders were issued during the season.
- Regrettably, three fire fighters died during fire control action.

Range Management Program

The objective of the Range Management Program is to ensure that supplies of forage are available for domestic and wild ungulates, and to conserve the resource base so that forage production can be maintained in the future.

Forecast expenditure for 1985/86 for the Range Management Program was $5.0 million; actual expenditure was $4.7 million, about 5 percent more than in the previous year. Range Management Program expenditure accounted for 1.1 percent of ministry expenditure in 1985/86.

Additional funding of $0.14 million from the Forest Workers Assistance Program (FWAP) and $0.5 million from the private sector was used for range improvements on Crown land during the year.

Range revenue from permits and licences for the use of Crown range was $1.3 million in 1985/86, slightly above that of the previous year. The ground rent, $0.20 per animal unit month (AUM), was the same as in the previous year; but the forage fee, which is related to cattle prices of the previous year, increased to $1.16 per AUM from $1.02 per AUM.

Planning and Administration

- Staff in the ministry's Range Management Program administered the Agricultural and Rural Development Subsidiary Agreement (ARDSA). The ARDSA is a cooperative British Columbia-Canada agreement which was used to fund range improvement activities on Crown land. Since the inception of the ARDSA in 1977/78, about $17.8 million has been spent on range improvement activities. Funds from the ARDSA were also used to develop Coordinated Resource Management Plans (CRMPs). To date, 126 CRMPs have been completed and have assisted the ministry in resolving resource use conflicts arising from multiple use of Crown land. The ministry has identified the need to find alternative sources of funding to replace the ARDSA, which expired in 1984/85.
- North American cattle prices were about the same as in the previous year. The size of the commercial beef cow herds in British Columbia declined slightly to approximately 210,000 head as of mid-1985. Many ranchers in British Columbia continue to face financial difficulties. Despite these conditions, the demand for range use of Crown land continues to be active.
- For livestock grazing, authorized use of Crown rangeland was more than 1 million AUMs, about 8 percent higher than the goal of 934,000 AUMs established in the *Five-Year Forest and Range Resource Program, 1985–1990*. Utilization was approximately 930,000 AUMs, about 92 percent of authorized use.
- For hay cutting, authorized tonnage was more than 2 600 tonnes. Most of the hay cutting permits and licences were for areas located in wet lands of the interior of the province. Utilization was about 2 250 tonnes, or about 85 percent of the authorized tonnage.

Range Resource Improvements

- Seeding of disturbed forest sites with grasses and forbs was carried out on close to 12 500 ha, about 5 percent more than in the previous year. Seeding was also carried out on more than 1 100 ha of

grassland for rehabilitation, down from the nearly 1 700 ha seeded in the previous year.
  - — On sites where research has been conducted, the seeding of forest sites that have been clear-cut has proven to be a cost-effective method of increasing the forage available for domestic and wild ungulates.
  - — The cumulative area of disturbed forest land that has been seeded is extensive and is an important component of the range resources available on Crown land.
- Weed control activities were mainly for knapweed (886 ha) and thistle (65 ha). Knapweed is the weed of principal concern and is now estimated to infest in excess of 80 000 ha of rangeland. Chemical and biological control of knapweed has been identified as a continuing priority for the ministry's range management program. Increased funding for a control program has been approved by government. The longer term consequences of the spread of knapweed will be the loss of forage resources.
- The ministry continues its inventory work on the availability of range resources on Crown land. Two inventory projects, one in the Nelson Forest Region and the other in the Kamloops Forest Region, are underway to develop and implement range inventory methodology.
- Research activities in range resource management continued, especially in the biological control of knapweed. Several research projects were cooperatively undertaken between the ministry's Range Management and Research Branches. A range resource monitoring project was undertaken in association with the Ministry of Environment. This project is intended to develop standard methodologies for monitoring range resources.

Recreation Management Program

The objectives of the Recreation Management Program are to maintain and enhance recreational values of forest resources on Crown lands, including the aesthetic values of the forest landscape, and to provide trails and sites which facilitate public recreational use of these lands.

Forecast expenditure for 1985/86 for the Recreation Management Program was $4.0 million; actual expenditure was $4.0 million, about 1 percent more than in the previous year. The Recreation Management Program accounted for approximately 1 percent of the ministry expenditure in 1985/86.

Additional funding and labour were provided by federal-provincial job creation programs and local volunteer groups to assist in the development and maintenance of facilities.

The Recreation Management Program has three components: resource management, site and trail maintenance, and site and trail development.

Resource Management

- Recreation benefits of forest resources often exist in areas which are visually or environmentally sensitive, and in features which have cultural, historical or other recreational significance. Recreation resource management encompasses the identification, protection and management of recreation benefits intrinsic in the province's forest resources.
- Personnel were added to the ministry's landscape staff in the forest regions, reflecting the increasing acceptance of the integration of landscaping principles to timber planning and related operations.
- Work commenced during the year on the Chilliwack River Recreation Corridor Plan, the first of such plans after a Provincial Recreation Corridor Policy was established last year. The ministry has been assigned the lead role to coordinate inter-ministry and public planning teams.
- The ministry's *Recreation Manual* was extensively revised during the year. The manual contains references pertaining to recreation resource management in the province, including:
  - — statutory authority;
  - — inter-ministry communication;
  - — integration of planning levels;

— sites and trails management; and
— winter recreation.

- Refining and updating the *Recreation Resource Inventory* is an ongoing task. This inventory identifies the kinds and extent of recreation areas within the provincial forest resource. Recreation areas are assessed according to a range of management and planning criteria, such as relative sensitivity to other forest uses, including timber harvesting.
- In October 1985, the Wilderness Advisory Committee was established by the Ministry of Environment to review the preservation of wilderness areas as an important aspect of natural resource management. The committee submitted its report to government in March 1986, after a public forum which included informal public meetings in almost all study areas, receipt of more than one thousand written submissions, and seven formal public meetings at selected locations in the province. Cabinet direction on the committee's recommendations is pending. These recommendations could have significant impacts on the ministry's recreation program.

Site and Trail Maintenance

- Site maintenance remained at approximately the same level as in the previous years with 1,029 sites maintained during the year. In spite of an extremely severe forest fire season which limited recreational use of the forests at peak holiday periods, use of recreation sites increased slightly to just over 1.3 million visits.
- During the year, the ministry increased efforts to identify existing recreation trails, and to incorporate area-based trail networks into inventory. These networks are particularly numerous in the Kamloops and Prince George Forest Regions. As a result, the ministry's inventory of recreation trails has increased to almost 2 400 km which is about 1 200 km more than last year's.
- On most trails, maintenance was again limited to an annual inspection and abatement of prominent hazards. On some winter trails, cross-country skiing was enhanced by grooming and track setting. In many cases, ski trail improvements were carried out by volunteer user groups.
- Problems of vandalism, particularly near urban centres, continued to consume significant portions of maintenance funds in some districts.

Site and Trail Development

- Development of new sites and trails was very limited during the year. Emphasis was placed on maintaining existing developments.

III. Summary Statistical Tables

NOTE: All financial data for 1985/86 contained in Section III are unaudited. Figures in tables may not add to the totals shown, due to rounding.

Table 1: Forecast and Actual Expenditure[1] in 1985/86, by Program

Program	Forecast Expenditure[2]	Revised Forecast Expenditure[4]	Actual Expenditure[5]
	(thousands of dollars)		
Minister	160	156	156
Management	13,320	13,444	13,433
Finance and Administration	35,620	39,399	41,761
Harvesting	93,970	81,277	79,659[3]
Silviculture	123,570	131,747	135,067
Research	9,370	9,548	9,424
Forest Protection	24,920	25,081	25,408
Fire Suppression	46,500	46,500	129,395
Range Management	5,000	4,997	4,699
Recreation Management	4,000	3,932	3,990
TOTAL	**356,430**	**356,081**	**442,992**

Notes:

[1] Includes $18.901 million in employee benefits distributed among programs.

[2] *Five-Year Forest and Range Resource Program, 1985–1990.*

[3] Includes $2.165 million transferred from Finance and Administration Program to Harvesting Program for Valuation Branch.

[4] Forecast expenditure was revised as follows:

Program	Amount ($000)
Minister	– 4
Management	+ 124
Finance and Administration	+ 3,779
Harvesting	– 12,693
Silviculture	+ 8.177
Research	+ 178
Forest Protection	+ 161
Fire Suppression	0
Range Management	– 3
Recreation Management	– 68
TOTAL	**– 349**

Revisions resulted from additional funding, inter-ministry transfers, Section 88 allocations, Small Business Enterprise Program allocations, and inter-program transfers.

[5] Includes all expenditures under the five-year program. Funds are from two sources:

(i) Ministry of Forests budget ..... $371.729 million

(ii) Expenditures by licensees approved under Section 88 of the *Forest Act* ..... $ 71.263 million

Table 2: Forecast and Actual Expenditure[1] in 1985/86, by Forest Region

Forest Region	Forecast Expenditure[2]	Revised Forecast Expenditure[3]	Actual Expenditure[4]
	(thousands of dollars)		
Cariboo	25,598	22,057	30,560
Kamloops	30,553	29,407	38,666
Nelson	27,462	26,494	70,485
Prince George	53,989	53,234	74,194
Prince Rupert	33,901	32,129	32,323
Vancouver	44,433	44,415	62,740
Victoria	140,494	148,345	134,024
TOTAL	**356,430**	**356,081**	**442,992**

Notes:

[1] Includes $18.901 million in employee benefits.

[2] *Five-Year Forest and Range Resource Program, 1985–1990.*

[3] Revisions resulted from additional funding, inter-ministry transfers, Section 88 allocations, Small Business Enterprise Program allocations, and inter-program transfers.

[4] Includes all expenditures under the five-year program. Funds are from two sources:

(i) Ministry of Forests budget ..... $371.729 million

(ii) Expenditures by licensees approved under Section 88 of the *Forest Act* ..... $ 71.263 million

Table 3: Composition of Actual Expenditure in 1985/86, by Program

Program	Wages & Salaries[1]	Materials, Supplies & Expenses[2]	Contracts	Section 88	TOTAL
		(thousands of dollars)			
Minister	155	1	—	—	156
Management	11,063	2,100	270	—	13,433
Finance and Administration	23,920	11,425	6,416	—	41,761
Harvesting	38,690	13,699	7,849	19,421	79,659[3]
Silviculture	27,716	19,718	37,528	50,105	135,067
Research	6,491	1,579	803	551	9,424
Forest Protection	12,898	8,650	2,921	939	25,408
Fire Suppression	33,234	48,485	47,676	—	129,395
Range Management	2,911	1,106	682	—	4,699
Recreation Management	2,450	823	470	247	3,990
TOTAL	**159,528**	**107,586**	**104,615**	**71,263**	**442,992**

Notes:

[1] Includes $18.901 million in employee benefits distributed among programs.

[2] Includes $13.849 million paid to the British Columbia Buildings Corporation for building occupancy charges throughout the province.

[3] Includes $2.165 million transferred from the Finance and Administration Program to Harvesting Program for Valuation Branch.

Table 4: Composition of Actual Expenditure in 1985/86, by Forest Region

Forest Region	Wages & Salaries	Materials, Supplies & Expenses	Contracts	Section 88	TOTAL
			(thousands of dollars)		
Cariboo	10,809	9,255	4,568	5,928	30,560
Kamloops	13,892	8,935	7,503	8,336	38,666
Nelson	22,543	23,870	17,727	6,345	70,485
Prince George	18,164	17,015	16,769	22,246	74,194
Prince Rupert	11,479	6,096	7,323	7,425	32,323
Vancouver	22,296	14,420	11,391	14,633	62,740
Victoria	60,345[1]	27,995[2]	39,334	6,350	134,024
TOTAL	**159,528**	**107,586**	**104,615**	**71,263**	**442,992**

Notes:
[1] Includes $18.901 million in employee benefits.
[2] Includes $13.849 million paid to the British Columbia Buildings Corporation for building occupancy charges throughout the province.

Table 5: Forest and Range Revenue[1] in 1985/86, by Forest Region

Forest Region	Forest Revenue[2]	Range Revenue	TOTAL
		(thousands of dollars)	
Cariboo	13,394	488	13,882
Kamloops	19,419	453	19,872
Nelson	12,810	103	12,913
Prince George	30,490	194	30,684
Prince Rupert	27,693	43	27,736
Vancouver	103,992	3	103,995
Victoria	1,178	—	1,178
TOTAL	**208,976**	**1,284**	**210,260**

Notes:
[1] Forest and range revenue in Tables 5, B-2 and E-2 is presented on an accrual basis.
[2] Before application of $71.3 million in credits against stumpage payable, shown by program and forest region in Tables 3 and 4 under the column heading "Section 88".

Table 6: Forest Land in British Columbia, by Forest Region[1]

Forest Region	Stocked With Mature Timber	Stocked With Immature Timber	NSR[2] and NC Brush[3]		TOTAL
			Natural Stocking Expected	Natural Stocking Doubtful	
	(thousands of hectares)				
Cariboo	3 526	2 224	90	68	5 908
Kamloops	2 385	1 828	123	71	4 407
Nelson	1 546	2 084	98	146	3 874
Prince George	9 249	6 326	1 058	1 085	17 718
Prince Rupert	7 050	2 361	467	236	10 114
Vancouver	3 093	1 581	83	29	4 786
TOTAL	**26 849**	**16 404**	**1 919**	**1 635**	**46 807**

Notes:

[1] Source: *1984 Forest and Range Resource Analysis*. Includes forest land on which timber harvesting is restricted partly or wholly by factors such as timber quality, accessibility and environmental sensitivity. Excludes:

(i) Crown forest land in timber licences which are outside tree farm licences,

(ii) private forest land outside tree farm licences, and

(iii) federal forest land.

[2] Not Satisfactorily Restocked. Areas on which forest stands have been disturbed over 75 percent by fire, harvesting or other causes and have not restocked with sufficient trees of commercial species.

[3] Non-Commercial Brush. Areas that have been invaded and covered by brush.

Table 7: Deletion of Land from Provincial Forests in 1985/86, by Forest Region

Forest Region	Designated Use of Land Deleted					
	Agriculture	Industry and Transportation	Parks and Recreation	Settlement	Other[1]	TOTAL
	(hectares)					
Cariboo	332	—	—	1	—	333
Kamloops	95	18	—	3	—	116
Nelson	109	16	1	12	—	138
Prince George	476	63	—	3	—	542
Prince Rupert	51	1	3 573	123	—	3 748
Vancouver	6	209	1	138	—	354
TOTAL	**1 069**	**307**	**3 575**	**280**	**—**	**5 231**

Note:

[1] Land exchange.

IV. Detailed Statistical Tables

NOTE: All financial data for 1985/86 contained in Section IV are unaudited. Figures in tables may not add to the totals shown, due to rounding.

Table A-1: Finance and Administration Program Expenditure[1, 2] in 1985/86, by Forest Region

Forest Region	Financial Services	Personnel Services	Systems Services	Technical and Administrative Services	TOTAL
	(thousands of dollars)				
Cariboo	1,165	97	102	953	2,317
Kamloops	1,531	106	102	1,178	2,917
Nelson	1,220	97	223	1,033	2,573
Prince George	2,105	70	285	1,246	3,706
Prince Rupert	1,590	91	115	1,174	2,970
Vancouver	2,787	124	90	2,196	5,197
Victoria	6,929[3]	1,087	7,868	2,643	18,527
TOTAL	**17,327**	**1,672**	**8,785**	**10,423**	**38,207**

Notes:

[1] Excludes $3.554 million in employee benefits. Expenditure for employee benefits was also excluded in previous annual reports.

[2] Excludes $2.165 million transferred from the Finance and Administration Program to the Harvesting Program for Valuation Branch.

[3] Excludes $5.800 thousand for *Financial Administration Act*, Section 24 (1) C accounts.

Table A-2: Ministry of Forests Personnel in 1985/86, by Program

Program	Turnover in Regular Positions		Regular Employment[1]		Seasonal Employment[2]		Total Employment	
	Vacated	Filled	Allocated	Actual	Allocated	Actual[3]	Allocated	Actual
	(number)		(full time equivalents[4])					
Minister	5	6	5	5	—	—	5	5
Management	24	40	249	236	—	—	249	236
Finance and Administration	155	147	836	832	14	23	849	855
Harvesting	181	162	1,110	1,068	35	46	1,145	1,114
Silviculture	70	100	521	509	253	253	744	762
Research	17	18	161	158	15	17	176	175
Forest Protection	45	25	218	215	110	131	328	346
Fire Suppression	2	—	7	8	37	38	44	46
Range Management	9	13	78	76	2	2	80	78
Recreation Management	4	2	61	60	1	1	62	61
TOTAL	**512**	**513**	**3,245**	**3,167**	**466**	**511**	**3,711**	**3,678**

Notes:
[1] Employment of a continuous nature.
[2] Employment of a discontinuous nature.
[3] Includes vacant regular full time equivalents (FTEs) used for seasonal employment.
[4] The concept of full time equivalent (FTE), defined as 1,827 hours (the normal working hours in one year for one full time employee), is used to account for all personnel on a similar basis.

Table A-3: Ministry of Forests Personnel in 1985/86, by Forest Region

Forest Region	Turnover in Regular Positions		Regular Employment[1]		Seasonal Employment[2]		Total Employment	
	Vacated	Filled	Allocated	Actual	Allocated	Actual[3]	Allocated	Actual
	(number)		(full time equivalents[4])					
Cariboo	80	45	271	261	48	57	319	318
Kamloops	59	46	368	366	27	33	394	399
Nelson	28	51	345	330	44	58	389	388
Prince George	60	99	380	368	54	68	434	436
Prince Rupert	68	70	307	296	37	40	344	336
Vancouver	121	87	685	682	14	15	699	697
Victoria	96	115	889	864	243	240	1,132	1,104
TOTAL	**512**	**513**	**3,245**	**3,167**	**466**	**511**	**3,711**	**3,678**

Notes:
[1] Employment of a continuous nature.
[2] Employment of a discontinuous nature.
[3] Includes vacant regular full time equivalents (FTEs) used for seasonal employment.
[4] The concept of full time equivalent (FTE), defined as 1,827 hours (the normal working hours in one year for one full time employee), is used to account for all personnel on a similar basis.

Table B-1: Harvesting Program Expenditure[1] in 1985/86, by Forest Region

Forest Region	Planning and Inventory	Valuation[2]	Timber Management	Engineering[3] and Roads	Scaling	Small Business Enterprise Program[4]	TOTAL
			(thousands of dollars)				
Cariboo	352	638	2,080	2,763	342	1,297	7,472
Kamloops	576	388	2,786	2,078	465	1,322	7,615
Nelson	580	398	2,706	3,360	460	1,151	8,655
Prince George	699	596	2,835	9,900	632	1,582	16,244
Prince Rupert	701	585	1,951	1,647	604	1,179	6,667
Vancouver	637	2,041	5,496	4,427	2,813	1,486	16,900
Victoria	4,274	2,165[5]	1,637	1,769	—	—	9,845
TOTAL	**7,819**	**6,811**	**19,491**	**25,944**	**5,316**	**8,017**	**73,398**

Notes:
[1] Excludes $6.261 million in employee benefits. Expenditure for employee benefits was also excluded in previous annual reports.
[2] During the year the transfer of Valuation Branch from the Harvesting Program to the Finance and Administration Program was completed. In subsequent annual reports, Valuation Branch expenditure will be reported as part of the Financial and Administration Program.
[3] Engineering and Roads includes $19.421 million credit to stumpage payable, as provided for under Section 88 of the *Forest Act*.
[4] Funds are from Small Business Enterprise Account.
[5] Transfer of $2.165 million from Finance and Administration Program to Harvesting Program for Valuation Branch.

Table B-2: Forest Revenue in 1985/86, by Forest Region

Forest Region	Annual Rents	Stumpage Accrued[1] Net Stumpage	Plus Credits	Gross Stumpage	Royalty & Export	Scaling	Interest	Other[2]	TOTAL
				(thousands of dollars)					
Cariboo	1,984	5,082	5,957	11,039	—	217	104	50	13,394
Kamloops	1,892	8,138	8,636	16,774	—	182	153	418	19,419
Nelson	1,505	4,084	6,412	10,496	124	156	265	264	12,810
Prince George	3,635	3,794	21,459	25,253	—	458	645	499	30,490
Prince Rupert	2,739	13,923	7,608	21,531	2,792	284	196	151	27,693
Vancouver	6,702	59,770	21,191	80,961	14,074	1,161	629	465	103,992
Victoria	644	—	—	—	—	—	1	533	1,178
TOTAL	**19,101**	**94,791**	**71,263**	**166,054**	**16,990**	**2,458**	**1,993**	**2,380**	**208,976**

Notes:
[1] Includes stumpage billed and an estimate of stumpage on timber scaled but not yet billed.
[2] Includes forest protection agreements and miscellanea.

Table B-3: Average Stumpage Prices[1] in 1985/86, by Forest Region and Species

Forest Region	Balsam		Cedar		Cypress		Douglas-fir	
	Volume	Price	Volume	Price	Volume	Price	Volume	Price
	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)
Cariboo (C)	—	—	—	—	—	—	*	.99
Cariboo (I)	352	1.19	83	1.33	—	—	887	1.89
Kamloops	835	1.22	367	1.38	*	1.45	1 331	1.45
Nelson	529	1.14	564	1.71	—	—	550	1.46
Prince George	1 675	1.22	35	1.37	—	—	265	1.60
Prince Rupert (C)	175	2.38	78	3.08	12	4.75	—	—
Prince Rupert (I)	1 063	1.08	131	1.37	—	—	*	1.09
Vancouver (C)	2 703	3.01	3 764	4.73	372	11.99	1 760	6.69
Vancouver (I)	86	1.37	66	3.18	2	1.71	203	2.30
TOTAL	**7 418**	**1.87**	**5 088**	**3.94**	**386**	**11.71**	**4 996**	**3.42**

Forest Region	Hemlock		Larch		Lodgepole Pine		Spruce	
	Volume	Price	Volume	Price	Volume	Price	Volume	Price
	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)
Cariboo (C)	—	—	—	—	*	.99	1	1.26
Cariboo (I)	36	1.06	—	—	3 672	.92	1 674	1.52
Kamloops	202	.39	90	1.49	2 879	1.20	2 109	1.38
Nelson	328	.31	228	1.43	1 496	.92	1 352	1.31
Prince George	12	1.01	*	.96	4 349	1.18	7 683	1.33
Prince Rupert (C)	225	2.36	—	—	*	2.30	99	7.87
Prince Rupert (I)	1 171	1.08	—	—	2 256	1.05	2 000	1.19
Vancouver (C)	6 129	2.86	—	—	2	1.44	589	14.49
Vancouver (I)	66	1.99	—	—	27	1.19	59	1.50
TOTAL	**8 169**	**2.41**	**318**	**1.45**	**14 681**	**1.07**	**15 566**	**1.88**

Forest Region	White Pine		Other Species		All Species	
	Volume	Price	Volume	Price	Volume	Price
	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)	(000 m^3)	($/$m^3$)
Cariboo (C)	—	—	—	—	1	1.20
Cariboo (I)	*	1.12	1	.37	6 705	1.22
Kamloops	44	22.91	10	1.75	7 867	1.41
Nelson	76	22.61	23	1.57	5 146	1.50
Prince George	*	20.54	2	.61	14 021	1.28
Prince Rupert (C)	—	—	*	1.48	589	3.44
Prince Rupert (I)	—	—	13	1.07	6 634	1.11
Vancouver (C)	19	1.89	18	1.29	15 356	4.45
Vancouver (I)	3	9.16	2	1.25	514	2.10
TOTAL	**142**	**19.65**	**69**	**1.37**	**56 833**	**2.18**

Notes:

[1] Based on gross stumpage received on timber billed from tree farm licences, forest licences, timber sale harvesting licences and timber sale licences. Volume excludes firmwood rejects and waste. Excludes stumpage received from Small Business Enterprise Program sales.

* Indicates volume less than 500 m^3.

Table B-4: Stumpage Revenue from the Small Business Enterprise Program in 1985/86, by Forest Region

Forest Region	Volume Billed[1]	Stumpage Appraised	Bonus Bid[2]	Stumpage Billed	Stumpage Billed as a % of Stumpage Appraised
	($000\ m^3$)	(thousands of dollars)			(%)
Cariboo	899	1,982	685	2,667	135
Kamloops	861	1,160	4,565	5,725	494
Nelson	496	752	1,312	2,064	274
Prince George	1 190	1,310	5,718	7,028	536
Prince Rupert					
Coast	120	238	221	459	193
Interior	1 292	1,459	3,140	4,599	315
Vancouver					
Coast	981	3,005	5,619	8,624	287
Interior	37	67	228	295	440
TOTAL	**5 876**	**9,973**	**21,488**	**31,461**	**315**

Notes:
[1] Excludes firmwood rejects and waste.
[2] Bid for timber, in addition to stumpage appraised.

Table B-5: Volume of All Products Billed[1] in 1985/86, by Forest Region and Land Status

Land Status	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	TOTAL
				(thousands of cubic metres)			
Crown Land							
Tree Farm Licence[2]	123	670	1 339	496	1 202	8 346	12 176
Timber Sale Harvesting Licence	—	—	—	2 473	—	—	2 473
Forest Licence	6 059	7 051	3 427	10 616	5 375	7 070	39 598
Timber Sale Licence	1 467	1 082	885	1 830	2 074	1 502	8 840
Licence to Cut	242	35	37	963	97	109	1 483
Timber Licence							
Within Tree Farm Licence	—	—	—	—	—	3 998	3 998
Outside Tree Farm Licence	—	153	84	—	136	2 330	2 703
Woodlot Licence	10	14	4	44	36	4	112
Other[3]	121	210	57	63	227	284	962
Sub-total	8 022	9 215	5 833	16 485	9 147	23 643	72 345
Private Land[4]							
Within Tree Farm Licence	—	—	4	1	—	620	625
Within Woodlot Licence	—	—	—	—	—	—	—
Outside Tree Farm Licence and Woodlot Licence	465	425	869	528	122	3 393	5 802
Sub-total	465	425	873	529	122	4 013	6 427
Federal Land and Indian Reserves	9	25	5	6	36	28	109
TOTAL	**8 496**	**9 665**	**6 711**	**17 020**	**9 305**	**27 684**	**78 881**

Notes:
[1] Includes firmwood rejects.
[2] Includes Crown portion of lands (Schedule B lands) in tree farm licences only.
[3] Includes right-of-way, beachcomb, trespass and miscellanea.
[4] All Crown granted lands.

Table B-6: Volume of All Products Billed[1,2] in 1985/86, by Forest Region and Species

Forest Region	Balsam	Cedar	Cypress	Douglas-fir	Hemlock	Larch	Lodgepole Pine	Spruce	White Pine	Other Species	TOTAL
					(thousands of cubic metres)						
Cariboo (C)	—	—	—	*	—	—	*	1	—	—	1
Prince Rupert (C)	194	120	13	*	300	—	*	137	—	15	779
Vancouver (C)	4 511	6 429	593	4 009	10 373	—	4	967	40	173	27 099
Sub-total, Coast	4 705	6 549	606	4 009	10 673	—	4	1 105	40	188	27 879
Cariboo (I)	387	94	—	1 271	37	—	4 729	1 948	*	29	8 495
Kamloops	957	533	*	1 812	319	130	3 351	2 435	71	57	9 665
Nelson	618	863	—	885	442	350	1 806	1 570	110	67	6 711
Prince George	1 944	53	—	391	26	*	5 324	9 212	*	70	17 020
Prince Rupert (I)	1 279	184	*	1	1 370	*	3 011	2 608	*	73	8 526
Vancouver (I)	90	76	2	249	75	—	28	60	3	2	585
Sub-total, Interior	5 275	1 803	2	4 609	2 269	480	18 249	17 833	184	298	51 002
TOTAL	**9 980**	**8 352**	**608**	**8 618**	**12 942**	**480**	**18 253**	**18 938**	**224**	**486**	**78 881**

Notes:

[1] Includes firmwood rejects.

[2] Includes all harvesting on Crown, private and federal land and Indian Reserves.

* Indicates volume less than 500 m^3.

Table B-7: Area Harvested in 1985/86, by Forest Region

Forest Region	Harvesting Method	Crown Land				Private Land				TOTAL
		TFL[1]	TSA[2]	Other[3]	Sub-total	TFL[4]	TF[5]	Other[6]	Sub-total	
		(hectares)								
Cariboo	Clear Cutting	349	31 347	61	31 757	—	—	383	383	32 140
	Selective Cutting	33	9 835	27	9 895	—	—	—	—	9 895
	Sub-total	382	41 182	88	41 652	—	—	383	383	42 035
Kamloops	Clear Cutting	2 221	23 549	555	26 325	—	—	1 704	1 704	28 029
	Selective Cutting	170	6 960	18	7 148	—	—	1 181	1 181	8 329
	Sub-total	2 391	30 509	573	33 473	—	—	2 885	2 885	36 358
Nelson	Clear Cutting	4 724	11 030	1 071	16 825	29	150	1 029	1 208	18 033
	Selective Cutting	407	5 142	97	5 646	—	100	1 001	1 101	6 747
	Sub-total	5 131	16 172	1 168	22 471	29	250	2 030	2 309	24 780
Prince George	Clear Cutting	1 810	51 788	3 531	57 129	—	—	2 641	2 641	59 770
	Selective Cutting	—	34	—	34	—	—	—	—	34
	Sub-total	1 810	51 822	3 531	57 163	—	—	2 641	2 641	59 804
Prince Rupert	Clear Cutting	3 643	17 340	311	21 294	375	—	343	718	22 012
	Selective Cutting	—	252	—	252	—	—	—	—	252
	Sub-total	3 643	17 592	311	21 546	375	—	343	718	22 264
Vancouver	Clear Cutting	15 106	16 263	850	32 219	4 929	4 248	3 124	12 301	44 520
	Selective Cutting	97	1 766	10	1 873	—	13	83	96	1 969
	Sub-total	15 203	18 029	860	34 092	4 929	4 261	3 207	12 397	46 489
Sub-total	Clear Cutting	27 853	151 317	6 379	185 549	5 333	4 398	9 224	18 955	204 504
	Selective Cutting	707	23 989	152	24 848	—	113	2 265	2 378	27 226
TOTAL		**28 560**	**175 306**	**6 531**	**210 397**	**5 333**	**4 511**	**11 489**	**21 333**	**231 730**

Notes:

[1] Includes Crown land within tree farm licences.

[2] Includes Crown land within timber supply areas; excludes tree farm licences.

[3] Includes Crown land within woodlot licences, farm leases, federal lands and Indian Reserves.

[4] Includes private land within tree farm licences.

[5] Includes private land within certified tree farms, but outside tree farm licences.

[6] Includes private land outside tree farm licences and certified tree farms.

Table B-8: Volume of Logs Exported from British Columbia in 1985/86, by Species

Species	Exported Under Permit[1]	Other[2]	TOTAL
	(thousands of cubic metres)		
Balsam	643	22	665
Cedar	92	7	99
Cypress	3	9	12
Douglas-fir	235	120	355
Hemlock	746	43	789
Lodgepole Pine	4	2	6
Spruce	595	5	600
Other Softwood	5	8	13
Cottonwood	93	1	94
Other Hardwood	12	14	26
TOTAL	**2 428**	**231**	**2 659**

Notes:

[1] Export permit granted under Section 137 of the *Forest Act*. Logs harvested from provincial Crown land, private land within a tree farm licence area, and private land granted by the Crown after March 12, 1906.

[2] No export permit required under the *Forest Act*. Logs harvested from private land that was granted by the Crown prior to March 13, 1906, and is not within a tree farm licence area; and logs harvested from federal land and Indian Reserves.

Table B-9: Small Business Enterprise Program in 1985/86, by Forest Region

Forest Region	Registrants[1]		Sales		Volume Sold[4]	Value[5]
	Cat. 1[2]	Cat. 2[3]	Cat. 1	Cat. 2		
	(number)				(000 m^3)	($000)
Cariboo	483	78	219	47	1 100	2,690
Kamloops	674	176	96	26	820	3,786
Nelson	586	230	64	49	481	1,862
Prince George	656	143	88	26	1 317	8,413
Prince Rupert	466	193	162	71	1 462	5,205
Vancouver	1,747	201	248	17	894	9,669
TOTAL	**4,612**	**1,021**	**877**	**236**	**6 074**	**31,625**

Notes:

[1] On March 31, 1986.

[2] Category 1: Registrants who, at the time of application, did not own a timber processing facility.

[3] Category 2: Registrants who, at the time of application, owned a timber processing facility.

[4] Tendered volume.

[5] Value based upon appraised price at time of sale, plus bonus bid, if any.

Table B-10: Number of Licences as at March 31, 1986, by Forest Region

Form of Rights to Timber	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	TOTAL
				(number)			
Regular Licences							
Tree Farm Licence[1]	1	5	5	2	2[1]	15[1]	30[1]
Woodlot Licence	37	32	23	36	20	8	156
Timber Sale Harvesting Licence	—	—	—	4	—	—	4
Forest Licence	17	27	21	27	21	57	170
Timber Sale Licence (Major)	18	43	35	32	15	52	195
Timber Sale Licence (Minor), SBEP[2]	423	253	182	205	217	231	1,511
Other[3]	650	25	670	162	430	7,381	9,318
Sub-total	1,146	385	936	468	705	7,744	11,384
Special Licences							
Forest Licence[4, 5, 6]	10	—	—	—	3	3	16
Timber Sale Licence[7]	1	—	4	—	2	2	9
Timber Sale Licence (SBEP)[8]	—	—	—	—	—	—	—
Sub-total	11	—	4	—	5	5	25
TOTAL	**1,157**	**385**	**940**	**468**	**710**	**7,749**	**11,409**

Notes:

[1] Tree Farm Licence 25 is in both the Vancouver and Prince Rupert Forest Regions.

[2] Small Business Enterprise Program (SBEP): actual number of licences as at March 31, 1986.

[3] Licences issued within the Forest Service Reserve. This total includes licences for salvage sales, cash sales, free use permits, etc., issued between April 1, 1985 and March 31, 1986.

[4] Special Forest Licence in Lot 7741 Military Reserve.

[5] For deciduous trees.

[6] Special forest licences which are not a part of the annual allowable cut (AAC), e.g., sale of beetle damaged timber in Cariboo Forest Region, salvage sales in Kalum Timber Supply Area, etc.

[7] Special timber sale licences which are not a part of the annual allowable cut (AAC), e.g., sale of fire damaged timber in Nelson Forest Region.

[8] Additional volume for the Small Business Enterprise Program in Cariboo Forest Region. Number of licences is included in the number of regular licences.

Table B-11: Volume Committed as at March 31, 1986, by Forest Region

Form of Rights to Timber	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	TOTAL
				(thousands of cubic metres)			
Regular Licences							
Tree Farm Licence[1]	119	772	1 469	557	1 379	14 331	18 627
Woodlot Licence[2]	72	70	46	122	63	94	467
Timber Sale Harvesting Licence	—	—	—	2 223	—	—	2 223
Forest Licence[2]	5 277	6 075	3 441	11 031	5 123	7 958	38 905
Timber Sale Licence (Major)[2]	175	58	119	225	47	191	815
Timber Sale Licence (Minor), SBEP[2]	473	717	445	1 388	904	983	4 910
Forest Service Reserve[3]	53	80	521	145	163	134	1 096
Sub-total	6 169	7 772	6 041	15 691	7 679	23 691	67 043
Special Licences							
Forest Licence[4, 5, 6]	2 102	—	—	—	1 000	66	3 168
Timber Sale Licence[7]	191	—	620	—	245	60	1 116
Timber Sale Licence (SBEP)[8]	600	—	—	—	—	—	600
Sub-total	2 893	—	620	—	1 245	126	4 884
TOTAL	**9 062**	**7 772**	**6 661**	**15 691**	**8 924**	**23 817**	**71 927**

Notes:

[1] Tree Farm Licence 25 is in both the Vancouver and Prince Rupert Forest Regions.

[2] Volume apportioned.

[3] Volume apportioned to the Forest Service Reserve. Timber from the reserve is sold under timber sale licences and forest licences (not itemized above), cash sales and free use permits.

[4] Special Forest Licence in Lot 7741 Military Reserve.

[5] For deciduous trees.

[6] Special forest licences which are not a part of the annual allowable cut (AAC), e.g., sale of beetle damaged timber in Cariboo Forest Region, salvage sales in Kalum Timber Supply Area, etc.

[7] Special timber sale licences which are not a part of the annual allowable cut (AAC), e.g., sale of fire damaged timber in Nelson Forest Region.

[8] Additional volume for the Small Business Enterprise Program in Cariboo Forest Region.

Table B-12: Road Inventory, with Additions and Reductions in 1985/86, by Forest Region and Road Size

Forest Region	Road Size[1]	Initial Inventory[2]	Additions: Construction By Licensee[3]	Additions: Construction By Ministry	Additions: Transfer In[4]	Reductions: Cancelled	Reductions: Transfer Out[5]	Final Inventory[6]
					(kilometres)			
Cariboo	Double Lane	388.3	—	—	—	—	—	388.3
	Single Lane	2 708.4	64.0	102.2	—	—	30.0	2 844.6
	Sub-total	3 096.7	64.0	102.2	—	—	30.0	3 232.9
Kamloops	Double Lane	141.2	—	—	—	—	—	141.2
	Single Lane	7 082.9	49.0	88.8	103.8	210.7	—	7 113.8
	Sub-total	7 224.1	49.0	88.8	103.8	210.7	—	7 255.0
Nelson	Double Lane	179.8	—	—	6.0	—	—	185.8
	Single Lane	7 417.4	44.2	40.3	17.5	241.0	—	7 278.4
	Sub-total	7 597.2	44.2	40.3	23.5	241.0	—	7 464.2
Prince George	Double Lane	2 074.9	33.1	—	—	—	—	2 108.0
	Single Lane	2 861.9	98.6	24.9	48.9	1.1	—	3 033.2
	Sub-total	4 936.8	131.7	24.9	48.9	1.1	—	5 141.2
Prince Rupert	Double Lane	385.2	—	—	—	—	—	385.2
	Single Lane	1 390.0	6.0	49.2	31.3	—	56.3[7]	1 420.2
	Sub-total	1 775.2	6.0	49.2	31.3	—	56.3	1 805.4
Vancouver	Double Lane	19.4	—	—	—	—	—	19.4
	Single Lane	2 206.1	34.6	19.4	622.8[7]	—	2.5	2 880.4
	Sub-total	2 225.5	34.6	19.4	622.8	—	2.5	2 899.8
Provincial Sub-total	Double Lane	3 188.8	33.1	—	6.0	—	—	3 227.9
	Single Lane	23 666.7	296.4	324.8	824.3	452.8	88.8	24 570.6
TOTAL		**26 855.5**	**329.5**	**324.8**	**830.3**	**452.8**	**88.8**	**27 798.5**

Notes:

[1] Ministry of Forests Road: Double Lane, Class 1 (10 m wide)
Class 2 (9 m wide)
Class 3 (8 m wide)
: Single Lane, Class 4 (6 m wide)
Class 5 (5 m wide)
Class 6 (4 m wide)

[2] April 1, 1985.

[3] As approved under Section 88 of the *Forest Act*.

[4] Transfer to Ministry of Forests from another government agency or private ownership and adjustments between forest regions.

[5] Transfer from Ministry of Forests to another government agency or private ownership and adjustments between forest regions.

[6] March 31, 1986.

[7] Includes adjustment for the administrative transfer of Queen Charlotte Island Forest District and Queen Charlotte Timber Supply Area from Prince Rupert Forest Region to Vancouver Forest Region.

Table B-13: Road Improvements, Upgrading and Maintenance, in 1985/86, by Forest Region and Road Size

Forest Region	Road Size[1]	Improvements and Upgrading	Maintenance		TOTAL
			By Licensee[2]	By Ministry	
		(kilometres)			
Cariboo	Double Lane	—	—	—	—
	Single Lane	189.5	—	811.0	1 000.5
	Sub-total	189.5	—	811.0	1 000.5
Kamloops	Double Lane	—	—	—	—
	Single Lane	38.6	—	55.7	94.3
	Sub-total	38.6	—	55.7	94.3
Nelson	Double Lane	—	4.0	—	4.0
	Single Lane	74.8	1.6	311.0	387.4
	Sub-total	74.8	5.6	311.0	391.4
Prince George	Double Lane	2.0	—	—	2.0
	Single Lane	94.2	—	81.0	175.2
	Sub-total	96.2	—	81.0	177.2
Prince Rupert	Double Lane	2.0	—	47.9	49.9
	Single Lane	32.9	—	143.6	176.5
	Sub-total	34.9	—	191.5	226.4
Vancouver	Double Lane	—	—	—	—
	Single Lane	149.8	0.3	863.2	1 013.3
	Sub-total	149.8	0.3	863.2	1 013.3
Provincial Sub-total	Double Lane	4.0	4.0	47.9	55.9
	Single Lane	579.8	1.9	2 265.5	2 847.2
TOTAL		**583.8**	**5.9**	**2 313.4**	**2 903.1**

Notes:

[1] Ministry of Forests Road: Double Lane, Class 1 (10 m wide)
Class 2 (9 m wide)
Class 3 (8 m wide)
: Single Lane, Class 4 (6 m wide)
Class 5 (5 m wide)
Class 6 (4 m wide)

[2] As approved under Section 88 of the *Forest Act*.

Table B-14: Bridge and Culvert Inventory, with Additions and Reductions in 1985/86, by Forest Region and Bridge Class

Forest Region	Structure Class[1]	Initial Inventory[2]	Additions: Construction By Licensee[3]	Additions: Construction By Ministry	Additions: Transfer In[4]	Reductions: Deleted	Reductions: Transfer Out[5]	Final Inventory[6]
					(number)			
Cariboo	P	19	4	2	2	0	0	27
	SP	13	0	0	11	0	0	24
	T	86	0	0	26	0	0	112
	C	4	0	0	13	0	0	17
	Sub-total	122	4	2	52	0	0	180
Kamloops	P	28	2	1	0	0	0	31
	SP	14	7	1	3	0	0	25
	T	391	4	10	15	5	60	355
	C	0	0	0	7	0	0	7
	Sub-total	433	13	12	25	5	60	418
Nelson	P	47	2	0	3	1	0	51
	SP	38	5	1	1	7	2	36
	T	653	2	5	14	77	1	596
	C	22	1	0	24	0	0	47
	Sub-total	760	10	6	42	85	3	730
Prince George	P	122	14	2	1	0	9	130
	SP	51	0	2	3	3	0	53
	T	157	1	1	2	5	11	145
	C	90	13	1	15	0	0	119
	Sub-total	420	28	6	21	8	20	447
Prince Rupert	P	29	2	0	3	0	1	33
	SP	9	0	0	3	0	0	12
	T	121	0	1	4	2	9[7]	115
	C	14	2	2	7	0	0	25
	Sub-total	173	4	3	17	2	10	185
Vancouver	P	28	2	3	3	0	1	35
	SP	51	2	5	16	0	2	72
	T	287	3	5	26[7]	8	7	306
	C	2	1	0	15	0	0	18
	Sub-total	368	8	13	60	8	10	431
Provincial Sub-total	P	273	26	8	12	1	11	307
	SP	176	14	9	37	10	4	222
	T	1,695	10	22	87	97	88	1,629
	C	132	17	3	81	0	0	233
TOTAL		**2,276**	**67**	**42**	**217**	**108**	**103**	**2,391**

Notes:

[1] Definitions: P — Permanent: Substructure and superstructure have an expected lifespan of 50 years.
SP — Semi-Permanent: Substructure has an expected lifespan of 50 years; superstructure of 10–15 years.
T — Temporary: Substructure and superstructure have an expected lifespan of 10–15 years.
C — Culverts: Have an expected lifespan of 50 years: minimum diameter of 1 800 mm.

[2] April 1, 1985.

[3] As approved under Section 88 of the *Forest Act*.

[4] Transfer to Ministry of Forests from another government agency or private ownership and adjustments between forest regions.

[5] Transfer from Ministry of Forests to another government agency or private ownership and adjustments between forest regions.

[6] March 31, 1986.

[7] Includes adjustment for the administrative transfer of Queen Charlotte Island Forest District and Queen Charlotte Timber Supply Area from Prince Rupert Forest Region to Vancouver Forest Region.

Table C-1: Silviculture Program Expenditure[1] in 1985/86, by Forest Region

Forest Region	Administration	Basic Silviculture	Intensive Silviculture	Nursery Operations	Seed Operations	TOTAL
			(thousands of dollars)			
Cariboo	1,484	3,712	2,328	—	11	7,535
Kamloops	2,877	8,231	1,399	—	81	12,588
Nelson	1,358	5,819	1,137	—	100	8,414
Prince George	3,864	15,315	5,650	—	—	24,829
Prince Rupert	2,145	7,809	1,233	—	—	11,187
Vancouver	5,151	11,133	3,851	—	—	20,135
Victoria	2,793	—	2,084	34,256[2]	7,651	46,784
TOTAL	**19,672**	**52,019**	**17,682**	**34,256**	**7,843**	**131,472**

Notes:

[1] Excludes $3.595 million in employee benefits. Expenditure for employee benefits was also excluded in previous annual reports.

[2] Includes $22.416 million for ministry nurseries, $8.947 million for commercial nurseries, and $2.893 million for licensee nurseries as approved under Section 88 of the *Forest Act*.

Table C-2: Surveys[1] of Natural Restocking and of Plantations on Crown Land in 1985/86, by Forest Region

Forest Region	Basic Silviculture	Intensive Silviculture	TOTAL
		(hectares)	
Cariboo	26 825	24 382	51 207
Kamloops	44 672	20 179	64 851
Nelson	36 927	11 907	48 834
Prince George	111 867	13 736	125 603
Prince Rupert	39 759	12 765	52 524
Vancouver	57 985	11 944	69 929
TOTAL	**318 035**	**94 913**	**412 948**

Note:

[1] Includes surveys for site preparation, plantability, stocking, survival, stand tending and growth.

Table C-3: Site Preparation for Natural Restocking on Crown Land in 1985/86, by Forest Region

Treatment	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	TOTAL
				(hectares)			
Broadcast Burned	—	34	180	—	—	—	214
Bunched (Piled) and Burned	—	8	120	—	—	—	128
Spot Burned	—	210	96	—	—	—	306
Drag Scarified	909	587	393	6 301	199	—	8 389
Blade Scarified	7	762	382	78	—	—	1 229
Bunched Only	140	562	943	237	—	—	1 882
Other Mechanical[1]	2 596	217	36	—	—	41	2 890
Chemical Only	—	—	—	1 697	—	—	1 697
Residual Falling (Including Snags)	—	—	—	—	—	2 587	2 587
Snag Falling Only	—	—	—	—	—	—	—
Other[2]	—	179	83	—	—	—	262
TOTAL	**3 652**	**2 559**	**2 233**	**8 313**	**199**	**2 628**	**19 584**

Notes:
[1] Includes use of a Marden brush chopper, V-plow, and disc trencher.
[2] Includes mistletoe control, cabling and knockdown of trees over 3 metres high.

Table C-4: Site Preparation for Planting on Crown Land in 1985/86, by Forest Region

Treatment	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	TOTAL
				(hectares)			
Broadcast Burned	1 641	2 695	2 244	23 499	8 691	3 655	42 425
Bunched (Piled) and Burned	—	256	441	—	18	6	721
Spot Burned	135	144	345	344	29	148	1 145
Drag Scarified	263	56	—	763	138	—	1 220
Blade Scarified	—	534	145	3 701	175	19	4 574
Bunched Only	650	925	642	4 014	910	11	7 152
Other Mechanical[1]	897	626	296	3 042	3 101	306	8 268
Chemical Only	—	—	98	2 893	122	340	3 453
Residual Falling (Including Snags)	—	167	22	—	—	1 972	2 161
Snag Falling Only	—	—	—	—	—	—	—
Other[2]	38	265	66	184	30	135	718
TOTAL	**3 624**	**5 668**	**4 299**	**38 440**	**13 214**	**6 592**	**71 837**

Notes:
[1] Includes use of a Marden brush chopper, Leno scarifier, V-plow, disc trencher, Bracke scarifier, ripper plow, backhoe and Bracke mounder.
[2] Includes mistletoe control, cabling and knockdown of trees over 3 metres high.

Table C-5: Crown Land Planted in 1985/86, by Forest Region

Forest Region	Area Planted			Trees Planted		
	Basic Silviculture	Intensive Silviculture	TOTAL	Basic Silviculture	Intensive Silviculture	TOTAL
	(hectares)			(thousands of trees)		
Cariboo	5 876	1 505	7 381	7,773	2,042	9,815
Kamloops	12 205	3 158	15 363	15,279	4,096	19,375
Nelson	6 019	1 169	7 188	6,919	1,380	8,299
Prince George	26 098	6 483	32 581	27,317	7,965	35,282
Prince Rupert	16 906	1 260	18 166	21,602	1,561	23,163
Vancouver	19 678	1 085	20 763	14,828	983	15,811
TOTAL	**86 782**	**14 660**	**101 442**	**93,716**	**18,027**	**111,743**

Table C-6: Trees Planted[1] on Crown Land in 1985/86, by Forest Region and Species

Species	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	TOTAL
	(thousands of trees)						
Cedar, Western Red	14	128	265	—	86	1,892	2,385
Cypress	—	—	—	—	3	55	57
Douglas-fir	511	3,399	1,785	885	—	7,221	13,800
Fir, Alpine	4	6	—	—	—	—	10
Fir, Amabilis	—	—	—	—	52	1,329	1,381
Fir, Grand	—	—	—	—	—	468	468
Hemlock, Mountain	—	—	—	—	50	87	137
Hemlock, Western	—	—	—	—	482	2,570	3,052
Larch, Western	—	15	286	—	36	2	339
Pine, Lodgepole	2,099	7,526	962	7,912	11,463	20	29,981
Pine, Western White	—	4	5	4	—	21	33
Pine, Yellow	—	128	46	1	—	10	185
Spruce, Engelmann and White	7,186	8,168	4,950	26,480	9,714	1,333	57,832
Spruce, Sitka	—	—	—	—	1,278	804	2,082
TOTAL	**9,814**	**19,375**	**8,299**	**35,282**	**23,163**	**15,811**	**111,743**

Note:
[1] Includes trees planted for both basic silviculture and intensive silviculture.

Table C-7: Area Planted in 1985/86, by Forest Region

Forest Region	Crown Land				Private Land				TOTAL
		TSA[2]		Sub-total				Sub-total	
	TFL[1]	Licensee[3]	Ministry[4]		TFL[5]	TF[6]	Other[7]		
	(hectares)								
Cariboo	314	4 836	2 231	7 381	—	—	—	—	7 381
Kamloops	1 571	9 599	4 193	15 363	—	—	—	—	15 363
Nelson	1 654	3 640	1 894	7 188	—	270	270	540	7 728
Prince George	2 561	21 535	8 485	32 581	—	—	—	—	32 581
Prince Rupert	2 280	12 048	3 838	18 166	—	—	—	—	18 166
Vancouver	10 804	7 875	2 084	20 763	841	3 758	228	4 827	25 590
TOTAL	**19 184**	**59 533**	**22 725**	**101 442**	**841**	**4 028**	**498**	**5 367**	**106 809**

Notes:
[1] Includes Crown land within tree farm licences (TFL). Planting is funded by the ministry, through credits against stumpage payable. Planting is the responsibility of the licensee.
[2] Includes Crown land within timber supply areas (TSA), but excludes tree farm licences, woodlot licences, farm leases, federal lands and Indian Reserves.
[3] Planting is funded by the ministry, through credits against stumpage payable. Planting is the responsibility of the licensee.
[4] Planting is funded by the ministry and the Forest Resource Development Agreement (FRDA). Planting is the responsibility of the ministry.
[5] Includes private land within tree farm licences.
[6] Includes private land within certified tree farms (TF), but outside tree farm licences.
[7] Includes private land outside tree farm licences and certified tree farms.

Table C-8: Trees Planted in 1985/86, by Forest Region

Forest Region	Crown Land				Private Land				TOTAL
		TSA[2]		Sub-total				Sub-total	
	TFL[1]	Licensee[3]	Ministry[4]		TFL[5]	TF[6]	Other[7]		
	(thousands of trees)								
Cariboo	334	6,387	3,094	9,815	—	—	—	—	9,815
Kamloops	2,153	11,645	5,577	19,375	—	—	—	—	19,375
Nelson	1,432	4,557	2,310	8,299	—	391	—	391	8,690
Prince George	2,739	21,866	10,677	35,282	—	—	—	—	35,282
Prince Rupert	1,871	16,430	4,862	23,163	—	—	—	—	23,163
Vancouver	8,843	5,036	1,932	15,811	779	3,528	172	4,479	20,290
TOTAL	**17,370**	**65,921**	**28,452**	**111,743**	**779**	**3,919**	**172**	**4,870**	**116,613**

Notes:
[1] Includes Crown land within tree farm licences (TFL). Planting is funded by the ministry, through credits against stumpage payable. Planting is the responsibility of the licensee.
[2] Includes Crown land within timber supply areas (TSA), but excludes tree farm licences, woodlot licences, farm leases, federal lands and Indian Reserves.
[3] Planting is funded by the ministry, through credits against stumpage payable. Planting is the responsibility of the licensee.
[4] Planting is funded by the ministry and the FRDA. Planting is the responsibility of the ministry.
[5] Includes private land within tree farm licences.
[6] Includes private land within certified tree farms (TF), but outside tree farm licences.
[7] Includes private land outside tree farm licences and certified tree farms.

Table C-9: Brushing and Weeding on Crown Land in 1985/86, by Forest Region

Source of Funding	Forest Region	Treatment		TOTAL
		Manual	Chemical	
			(hectares)	
Ministry[1]	Cariboo	—	—	—
	Kamloops	43	—	43
	Nelson	119	14	133
	Prince George	—	2 178	2 178
	Prince Rupert	189	1 569	1 758
	Vancouver	2 587	8 825	11 412
	Sub-total	2 938	12 586	15 524
FWAP[2]	Cariboo	—	—	—
	Kamloops	—	—	—
	Nelson	319	—	319
	Prince George	499	—	499
	Prince Rupert	—	—	—
	Vancouver	—	—	—
	Sub-total	818	—	818
Federal Programs[3]	Cariboo	—	—	—
	Kamloops	164	—	164
	Nelson	156	—	156
	Prince George	383	653	1 036
	Prince Rupert	520	—	520
	Vancouver	309	—	309
	Sub-total	1 532	653	2 185
Sub-total	Cariboo	—	—	—
	Kamloops	207	—	207
	Nelson	594	14	608
	Prince George	882	2 831	3 713
	Prince Rupert	709	1 569	2 278
	Vancouver	2 896	8 825	11 721
	TOTAL	**5 288**	**13 239**	**18 527**

Notes:

[1] Includes ministry expenditure, Section 88 credits against stumpage payable, and funds from the FRDA.

[2] Forest Work Activity Program.

[3] Includes Canada Job Strategy Program, Canada Works Program and Katimavik Program.

Table C-10: Crown Land Improved in 1985/86, by Forest Region

Source of Funding	Forest Region	Types of Improvement					
		Spacing[4]	Fertilization	Site Rehabilitation	Conifer Release	Commercial Thinning	Other[5]
		(hectares)					
Ministry[1]	Cariboo	141	—	710	247	—	—
	Kamloops	—	10	1 186	13	—	—
	Nelson	319	—	1 322	—	91	—
	Prince George	—	—	10 676	248	42	—
	Prince Rupert	300	7	1 571	280	—	—
	Vancouver	3 888	—	503	249	63	2
	Sub-total	4 648	17	15 968	1 037	196	2
FWAP[2]	Cariboo	1 103	—	—	—	—	570
	Kamloops	215	—	—	—	—	523
	Nelson	150	—	—	—	—	217
	Prince George	189	—	—	6	—	2
	Prince Rupert	—	—	—	—	—	—
	Vancouver	—	—	—	—	—	—
	Sub-total	1 657	—	—	6	—	1 312
Federal Programs[3]	Cariboo	803	—	—	—	—	1 101
	Kamloops	2 160	—	—	—	—	—
	Nelson	525	—	—	45	—	—
	Prince George	399	—	—	61	—	73
	Prince Rupert	410	—	20	46	—	—
	Vancouver	270	—	51	—	—	362
	Sub-total	4 567	—	71	152	—	1 536
Sub-Total	Cariboo	2 047	—	710	247	—	1 671
	Kamloops	2 375	10	1 186	13	—	523
	Nelson	994	—	1 322	45	91	217
	Prince George	588	—	10 676	315	42	75
	Prince Rupert	710	7	1 591	326	—	—
	Vancouver	4 158	—	554	249	63	364
	TOTAL	**10 872**	**17**	**16 039**	**1 195**	**196**	**2 850**

Notes:

[1] Includes ministry expenditures, Section 88 credits against stumpage payable, and funds from the FRDA.

[2] Forest Work Activity Program.

[3] Includes Canada Job Strategy Program, Canada Works Program and Katimavik Program.

[4] Includes juvenile spacing and sanitation spacing.

[5] Includes pruning, mistletoe control and falling of snags and residual trees.

Table C-11: Average Cost[1] of Silviculture Treatments on Crown Land in 1985/86, by Forest Region

Treatment	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	British Columbia
			(dollars per hectare)				
Basic Silviculture							
Surveys[2]	4	5	7	6	6	9	6
Site Preparation for Natural Restocking	81	163	194	115	114	19	111
Site Preparation for Planting	225	220	195	133	140	249	160
Planting[3]	270	278	291	252	229	305	267
Brushing and Weeding:							
Manual	—	628	385	368	516	462	450
Chemical[4]	—	—	1,095[5]	203	208	375	299
Intensive Silviculture							
Surveys[2]	2	6	6	6	6	8	5
Backlog Planting[3]	241	278	267	223	195	289	242
Spacing[6]	486	485	398	419	961	670	575
Fertilization	—	169	—	—	—	—	169
Site Rehabilitation	150	182	260	168	225	584	196
Conifer Release	428	1,327	977	198	545	452	435
Commercial Thinning	—	—	91	—	—	71	82
Other[7]	—	—	—	—	—	571	571

Notes:

[1] Based on on-site operating cost (equipment, transportation and wages for crew and crew boss). Weighted by the area treated, where applicable. Excludes costs for activities undertaken in programs not funded by ministry.

[2] Includes surveys for assessing site treatment, plantation survival and stocking.

[3] Excludes cost of seedlings.

[4] Includes cost of herbicides.

[5] Not considered operational costs.

[6] Includes juvenile spacing and sanitation spacing.

[7] Includes pruning.

Table C-12: Seed Additions, Withdrawals and Inventory in 1985/86, by Species[1]

Native Species	Initial Inventory[2]	Additions: Natural Collections	Additions: Seed Orchard Collections	Withdrawals: Ministry Nurseries[3]	Withdrawals: Private & Licensee Nurseries[3]	Withdrawals: Other[4]	Final Inventory[5]
				(kilograms)			
Cedar, Western Red	470	68	—	30	16	2	490
Cypress	7	58	—	—	3	1	61
Douglas-fir	10 957	815	293	440	709	114	10 801
Fir, Alpine	815	—	—	—	—	3	811
Fir, Amabilis	4 601	548	—	653	50	262	4 184
Fir, Grand	868	82	—	18	10	4	919
Hemlock, Mountain	145	—	—	—	—	—	144
Hemlock, Western	815	1	—	14	26	9	768
Larch, Western	255	—	—	22	2	1	231
Pine, Lodgepole	3 613	1 117	—	380	219	229	3 902
Pine, Ponderosa	583	59	—	21	8	1	612
Spruce, Engelmann	5 495	1 289	—	81	186	24	6 493
Spruce, Sitka	764	—	—	16	8	8	731
Spruce, White	5 298	—	—	109	149	4	5 037
Spruce Hybrids[6]	7 832	22	2	166	363	53	7 274
Miscellanea	116	128	—	2	—	11	231
TOTAL	**42 632**	**4 188**	**295**	**1 953**	**1 748**	**726**	**42 688**

Notes:

[1] Excludes approximately 140 kilograms from exotic species.

[2] April 1, 1985. Also reflects taxonomic reclassification of several spruce seedlots during 1985/86.

[3] For sowing of seedlings primarily in 1986/87.

[4] For direct seeding, export, etc.

[5] March 31, 1986.

[6] Includes natural crosses between Sitka, Engelmann, white and black spruce.

Table C-13: Stock Shipment Summary[1,2] for 1985/86 by Nursery[3] and Forest Region

Nursery	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Victoria	TOTAL	% of Total Shipments
				(thousands of trees)					
Ministry									
Chilliwack	530	476	478	1,849	2,500	87	—	5,919	5.1
Campbell River	—	2	23	91	1,731	7,478	—	9,324	8.1
Green Timbers	1,390	1,064	219	4,052	2,683	1,197	—	10,605	9.2
Harrop	—	—	5,735	10	—	—	31	5,776	5.0
Koksilah	—	—	—	894	2,747	1,325	—	4,966	4.3
Red Rock	2	—	—	4,572	1,263	—	—	5,837	5.1
Skimikin	405	4,195	1,958	540	1,729	14	45	8,886	7.7
Surrey	4,276	2,111	2,225	8,035	993	602	—	18,241	15.8
Telkwa	—	—	—	—	265	—	—	265	0.2
Vernon	1,098	831	979	—	285	—	—	3,193	2.8
Sub-total	7,699	8,678	11,617	20,044	14,195	10,702	76	73,011	63.3
Private									
Arbutus Grove Nursery Ltd.	—	—	—	231	196	1,574	—	2,001	1.7
Balco Industries Ltd.	—	1,082	—	1,036	—	—	—	2,118	1.8
CIP Inc.	—	—	—	—	—	395	—	395	0.3
Hybrid Nurseries Ltd.	298	—	—	101	—	—	—	399	0.3
Industrial Forestry Systems Ltd.	424	—	—	5,990	1,247	—	—	7,661	6.6
Pelton Reforestation Ltd.	1,112	101	135	3,305	2,106	2,971	—	9,730	8.4
Northwood Pulp & Timber Ltd.	25	—	—	3,162	888	—	—	4,075	3.5
Ruff's Greenhouses	1,571	—	—	302	307	—	—	2,179	1.9
Reid, Collins Nurseries Ltd.	9	102	267	1,263	—	257	—	1,899	1.6
Riverside Nursery	—	—	439	—	—	—	—	439	0.4
Sylvan Vale Nursery Ltd.	—	—	—	—	—	1,051	—	1,051	0.9
Valentine Farm	326	—	—	—	—	—	—	326	0.3
West Fraser Mills Ltd.	55	—	—	—	—	—	—	55	0.0
Weyerhaeuser Canada Ltd.	—	6,007	—	—	—	—	—	6,007	5.2
World Silviculture Ltd.	898	440	613	205	1,760	—	—	3,916	3.4
Sub-total	4,717	7,732	1,455	15,594	6,503	6,248	—	42,248	36.7
TOTAL	**12,416**	**16,410**	**13,072**	**35,638**	**20,698**	**16,950**	**76**	**115,259**	**100.0**

Notes:

[1] Includes trees shipped for planting for both basic silviculture and intensive silviculture.

[2] The number of trees shipped by nurseries may not match the number of trees planted in forest regions due to: stock mortality in storage and in transit, stock deterioration and authorized destruction and transfer of stock to another forest region after receipt from originating nursery.

[3] Nurseries which had no shipments during the year are not listed.

Table D-1: Forest Protection Program Expenditure[1] in 1985/86, by Forest Region

Forest Region	Administration	Fire Management	Pest Management	Air Operations	Planning, Development & Research	Emergency Bark Beetle Program	TOTAL
			(thousands of dollars)				
Cariboo	706	660	547	105	—	2,615	4,633
Kamloops	1,972	251	293	138	38	796	3,488
Nelson	1,146	790	495	122	—	773	3,326
Prince George	1,690	1,044	919	150	—	465	4,268
Prince Rupert	1,395	816	778	90	1	1,418	4,498
Vancouver	1,055	693	304	123	7	4	2,186
Victoria	418	301	281	68	240	96	1,404
TOTAL	**8,382**	**4,555**	**3,617**	**796**	**286**	**6,167**	**23,803**

Note:
[1] Excludes $1.605 million in employee benefits. Expenditure for employee benefits was also excluded in previous annual reports.

Table D-2: Number and Causes of Wildfires[1] in 1985/86, by Forest Region

Cause	Cariboo		Kamloops		Nelson		Prince George		Prince Rupert		Vancouver		TOTAL	
	1985/86	Ten-Year Aver.[2]	1985/86	Ten-Year Aver.	1985/86	Ten-Year Aver.	1985/86	Ten-Year Aver.	1985/86	Ten-Year Aver.	1985/86	Ten-Year Aver.	1985/86	Ten-Year Aver.
	(number of wildfires)													
Lightning	139	108	437	324	779	316	358	257	63	69	179	81	1,955	1,155
Recreation[3]	20	16	56	95	17	32	31	23	24	24	58	44	206	234
Railroads	1	4	31	30	10	15	14	9	0	2	16	12	72	72
Smokers	23	25	66	71	33	37	27	19	30	20	68	53	247	225
Bush Burning[4]	27	17	36	20	14	13	25	26	17	14	22	14	141	104
Range Burning	32	21	14	7	1	1	20	15	3	1	0	6	70	51
Construction[5]	2	2	0	2	2	3	2	4	2	3	6	4	14	18
Industrial[6]	19	17	34	36	35	32	39	25	41	20	89	39	257	169
Incendiary	120	79	30	24	13	9	67	30	16	10	14	7	260	159
Miscellaneous Known Causes	72	43	102	38	39	41	39	20	44	30	65	28	361	200
Unknown Causes	3	1	5	1	5	1	5	1	2	0	0	1	20	5
TOTAL	**458**	**333**	**811**	**648**	**948**	**500**	**627**	**429**	**242**	**193**	**517**	**289**	**3,603**	**2,392**

Notes:
[1] Includes all wildfires in British Columbia.
[2] Based on 1975 through 1984.
[3] Campers, hunters, fishermen, etc.
[4] Excludes railway and right-of-way clearing.
[5] Road, power, telephone, pipeline and right-of-way construction.
[6] Logging, mining and other industries.

Table D-3: Area Burned by Wildfires[1] in 1985/86, by Forest Region

Forest Region	Merchantable Timber		Immature Timber		Other Cover[2]		TOTAL	
	1985/86	Ten-Year Average[3]	1985/86	Ten-Year Average	1985/86	Ten-Year Average	1985/86	Ten-Year Average
	(hectares)							
Cariboo	2 190	1 190	611	464	3 792	1 113	6 593	2 767
Kamloops	2 399	1 594	1 954	397	1 146	425	5 499	2 416
Nelson	33 548	3 846	16 719	1 619	10 404	1 441	60 671	6 906
Prince George	31 210	15 588	14 503	8 086	64 178	26 720	109 891	50 394
Prince Rupert	25 078	1 869	112	9 476	18 239	595	43 429	11 940
Vancouver	4 633	841	2 041	350	3 495	669	10 169	1 860
TOTAL	**99 058**	**24 928**	**35 940**	**20 392**	**101 254**	**30 963**	**236 252**	**76 283**

Notes:
[1] Includes all wildfires in British Columbia.
[2] Includes wildfires on Not Satisfactorily Restocked (NSR) forest land, Non-Commercial (NC) forest land, grazing land, and non-productive sites. Also includes wildfires less than 4 hectares in area.
[3] Based on 1975 through 1984.

Table D-4: Timber Burned by Wildfires[1] in 1985/86, by Forest Region

Forest Region	Mature Timber[2]	Immature Timber[3]	TOTAL
	(thousands of cubic metres)		
Cariboo	327	41	368
Kamloops	298	104	401
Nelson	8 211	1 109	9 320
Prince George	4 588	876	5 464
Prince Rupert	88	5	94
Vancouver	2 118	207	2 325
TOTAL	**15 630**	**2 343**	**17 972**

Notes:
[1] Includes all wildfires in British Columbia.
[2] Before salvage. Burned timber is salvaged wherever practical.
[3] Estimates. Based on species and generalized information on age and site. Assumes complete mortality.

Table D-5: Estimated Extent of Area[1] Under Attack by Forest Pests in 1985/86, by Forest Region

Forest Region	Bark Beetles[2]	Defoliators	TOTAL[3]
		(hectares)	
Cariboo	193 475	48 750	242 225
Kamloops	73 260	183 570	256 830
Nelson	14 420	200	14 620
Prince George	5 059	400	5 459
Prince Rupert	55 400	2 200	57 600
Vancouver	4 686	30 750	35 436
TOTAL	**346 300**	**265 870**	**612 170**

Notes:

[1] Best available estimates. Accuracy varies, depending on the pest.

[2] Area of forests attacked by bark beetles is estimated from aerial surveys in 1985. Represents stands which were under attack in 1984.

[3] Many more pests are endemic throughout the forests of British Columbia. Estimates of area under attack are not meaningful without detailed measures of the intensity of infestation.

Table D-6: Timber Damaged by Forest Pests[1] in 1985/86, by Forest Region

Forest Region	Bark Beetles	Defoliators	Dwarf Mistletoes	Root Diseases	TOTAL[2]
			(thousands of cubic metres)		
Cariboo	3 000	197	680	110	3 987
Kamloops	2 153	1 830	325	990	5 298
Nelson	345	—	273	585	1 203
Prince George	89	—	400	240	729
Prince Rupert	977	1	1 200	205	2 383
Vancouver	86	92	460	1 310	1 948
TOTAL	**6 650**	**2 120**	**3 338**	**3 440**	**15 548**

Notes:

[1] Best available estimates of current annual losses. Accuracy varies, depending on the pest. Only the major forest pests of British Columbia are included. The volumes of timber damaged are estimated before salvage. Damaged timber is salvaged wherever practical.

[2] Timber lost to decay in forest stands exceeding 100 years of age is not included. This loss is estimated at 10 million m^3 per year. Nursery and regeneration losses and suppressed tree growth due to other insects, diseases and unwanted vegetation are also not included.

Table D-7: Fire Suppression Program Expenditure in 1985/86, by Forest Region

Forest Region	Direct Fire Fighting	Suppression Flying	Equipment	Standby and Overtime	Suppression & Safety Training	Site Rehabilitation	TOTAL
			(thousands of dollars)				
Cariboo	3,627	2,064	3	130	11	4	5,839
Kamloops	5,893	2,486	1	257	3	6	8,646
Nelson	32,238	11,793	—	193	—	195	44,419
Prince George	14,675	6,935	1	233	4	6	21,854
Prince Rupert	1,987	2,023	11	91	15	5	4,132
Vancouver	8,170	6,336	16	89	—	—	14,611
Victoria	5,205	10,834	5,921	7,791	143	—	29,894
TOTAL	**71,795**	**42,471**	**5,953**	**8,784**	**176**	**216**	**129,395**

Table E-1: Range Management Program Expenditure[1] in 1985/86, by Range District

Range District	Planning & Administration	Improvements: Repair & Maintenance	Improvements: Development	Inventory & Research	TOTAL
		(thousands of dollars)			
Cariboo	579	55	238	12	884
Kamloops	754	176	69	—	999
Nelson	674	45	35	6	760
Prince George	630	—	—	56	686
Prince Rupert	242	—	6	—	248
Vancouver	3	—	—	—	3
Victoria	462	158	—	55	675
TOTAL	**3,344**	**434**	**348**	**129**	**4,255**

Note:

[1] Excludes $0.444 million in employee benefits. Expenditure for employee benefits was also excluded in previous annual reports.

Table E-2: Range Revenue in 1985/86, by Range District

Range District	Annual Rents and Fees
	(thousands of dollars)
Cariboo	488
Kamloops	453
Nelson	103
Prince George	194
Prince Rupert	43
Vancouver	3
Victoria	—
TOTAL	**1,284**

Table E-3: Grazing Permits and Grazing Licences in 1985/86, by Range District

Range District	Permits			Licences		
	Number	Authorized	Utilized	Number	Authorized	Utilized
		(AUMs)[1]			(AUMs)	
Cariboo	572	292,041	268,842	98	91,136	80,561
Kamloops	404	198,704	180,580	125	155,247	150,331
Nelson	237	73,831	66,049	22	9,453	8,407
Prince George	417	122,846	116,175	58	26,689	25,685
Prince Rupert	169	27,781	22,082	18	9,285	7,871
Vancouver	25	2,291	2,185	3	495	469
TOTAL	**1,824**	**717,494**	**655,913**	**324**	**292,305**	**273,324**

Note:

[1] Animal Unit Month (AUM) is the amount of forage required for one month by an average animal of the genus bos, aged 6 months or older.

Table E-4: Hay Cutting Permits and Hay Cutting Licences in 1985/86, by Range District

Range District	Permits			Licences		
	Number	Authorized	Utilized	Number	Authorized	Utilized
		(tonnes)			(tonnes)	
Cariboo	41	676	594	78	1 500	1 277
Kamloops	—	—	—	3	106	106
Nelson	—	—	—	2	35	35
Prince George	12	220	150	1	8	8
Prince Rupert	2	21	21	3	57	47
Vancouver	1	8	8	—	—	—
TOTAL	**56**	**925**	**773**	**87**	**1 706**	**1 473**

Table E-5: Range Improvements[1] on Crown Land in 1985/86, by Range District

Range District	Seeding		Fencing[3]	Weed Control[4]	Water Development[5]	Other[6]
	Grassland Rehabilitation	Disturbed Forest Land[2]				
	(ha)		(km)	(ha)	(no.)	(no.)
Cariboo	21	2 243	40	32	32	27
Kamloops	—	5 437	55	678	8	49
Nelson	36	4 067	29	218	29	18
Prince George	1 074	417	365	84	18	61
Prince Rupert	11	212	24	—	—	2
Vancouver	—	62	—	—	—	1
TOTAL	**1 142**	**12 438**	**514**	**1 013**	**87**	**158**

Notes:
[1] Excludes improvements funded by the Forest Work Activity Program (FWAP) and wholly by private sources.
[2] Includes seeding of clearcuts.
[3] Includes repair, maintenance and construction of fences.
[4] Control of knapweed, thistle, etc.
[5] Includes repair, maintenance and development of water sources.
[6] Includes repair, maintenance and development of trails, corrals, cattleguards, etc.

Table E-6: Average Cost[1] of Range Improvements[2] on Crown Land in 1985/86, by Range District

Range District	Seeding[3]		Fencing[4]		Weed Control[5]	
	Total Activity	By Ministry	Total Activity	By Ministry	Total Activity	By Ministry
	($/ha)	($/ha)	($/km)	($/km)	($/ha)	($/ha)
Cariboo	24	23	2,984	1,644	1,854	1,854
Kamloops	14	12	1,636	746	309	302
Nelson	18	15	2,913	1,373	304	283
Prince George	70	23	1,700	262	218	218
Prince Rupert	57	54	2,260	444	—	—
Vancouver	32	2	—	—	—	—
British Columbia	23	17	2,221	936	349	340

Notes:
[1] Based on funds from the Range Management Program, other ministry programs and private sources (on cost-sharing projects).
[2] Excludes improvements funded by the Forest Work Activity Program (FWAP), and by other non-ministry sources.
[3] Combines grassland rehabilitation (382 ha) and seeding of disturbed forest land (12 033 ha), mainly clearcuts.
[4] Construction of new fences.
[5] Includes containment of knapweed (886 ha), thistle (65 ha) and other weeds (38 ha).

Table F-1: Recreation Management Program Expenditure[1] in 1985/86, by Forest Region

Forest Region	Resource Management[2]	Site and Trail		TOTAL
		Maintenance	Development	
	(thousands of dollars)			
Cariboo	304	163	12	479
Kamloops	481	154	21	656
Nelson	427	169	—	596
Prince George	425	120	41	586
Prince Rupert	373	88	—	461
Vancouver	352	252	—	604
Victoria	276	5	—	281
TOTAL	**2,638**	**951**	**74**	**3,663**

Notes:
[1] Excludes $0.327 million in employee benefits. Expenditure for employee benefits was also excluded in previous annual reports. Also excludes assistance from volunteer groups and federal-provincial employment programs.
[2] Includes program administration.

Table F-2: Recreation Site and Trail Use in 1985/86, by Forest Region

Forest Region	Sites		Trails	
	Maintained	User Visits[1]	Length Maintained	User Visits[2]
	(number)	(number)	(km)	(number)
Cariboo	131	248,000	121	7,000
Kamloops	289	456,000	1 005	132,000
Nelson	200	163,000	275	57,000
Prince George	196	100,000	832	27,000
Prince Rupert	76	57,000	71	7,000
Vancouver	137	302,000	59	25,000
TOTAL	**1,029**	**1,326,000**	**2 363**	**255,000**

Notes:
[1] Estimates. Based on field surveys.
[2] Estimates.

V. The Structure of the Ministry

The ministry established its present structure in order to decentralize administrative authority. The headquarters, region and district staffs work together to decentralize decision-making. The ministry headquarters staff define policy and provide overall guidance. They also advise the deputy minister and, through him, the minister and government on all matters relating to forest and range policy.

Headquarters Organization

The headquarters staff was reorganized during 1984/85, from the previous four divisions into the following three divisions:

— Finance and Administration,
— Forestry, and
— Operations.

As shown in the organization chart on page 61, each of the three divisions is headed by an assistant deputy minister who reports to the deputy minister. These three officials, together with the deputy minister as chairman, constitute the ministry's executive. In addition to the three assistant deputy ministers, the directors of Information Services Branch, Range Management Branch and Strategic Studies Branch report directly to the deputy minister.

The functions of each division are summarized below.

The *Finance and Administration Division* is responsible for advising the executive in all administrative matters and for developing policies and procedures pertaining to the ministry's general administration. The division is comprised of the following five branches:

— Financial Services,
— Personnel Service,
— Systems Services,
— Technical and Administrative Services, and
— Valuation.

The *Forestry Division* ensures that all Crown forest lands are managed to provide the greatest long-term benefits for British Columbia. The assistant deputy minister of this division is also the chief forester. The Forestry Division maintains a comprehensive inventory of all the province's forest and range resources. Present and potential uses of forest resources are assessed in this division, which is comprised of the following five branches:

— Planning and Inventory,
— Protection,
— Recreation,
— Research, and
— Silviculture.

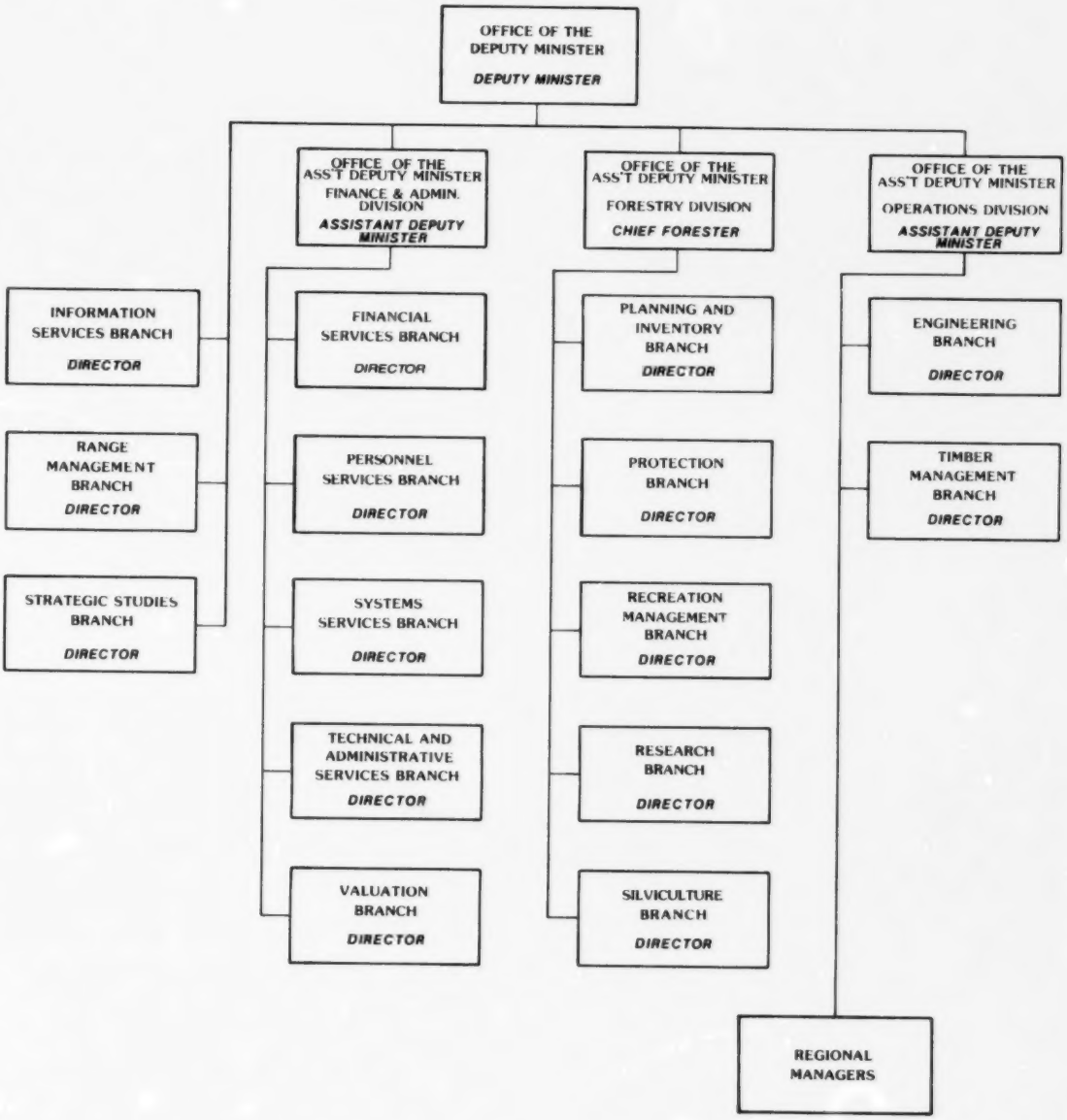
The *Operations Division* is responsible for providing access to timber, administering timber harvests, and ensuring that the ministry's policies, programs and procedures are promptly and effectively implemented in the province's six forest regions and forty-six forest districts. Two branches are included in this division:

— Engineering, and
— Timber Management.

The assistant deputy minister of operations is responsible for administering and coordinating all field operations in the six forest regions:

— Cariboo,
— Kamloops,
— Nelson,
— Prince George,
— Prince Rupert, and
— Vancouver.

Headquarters Organization

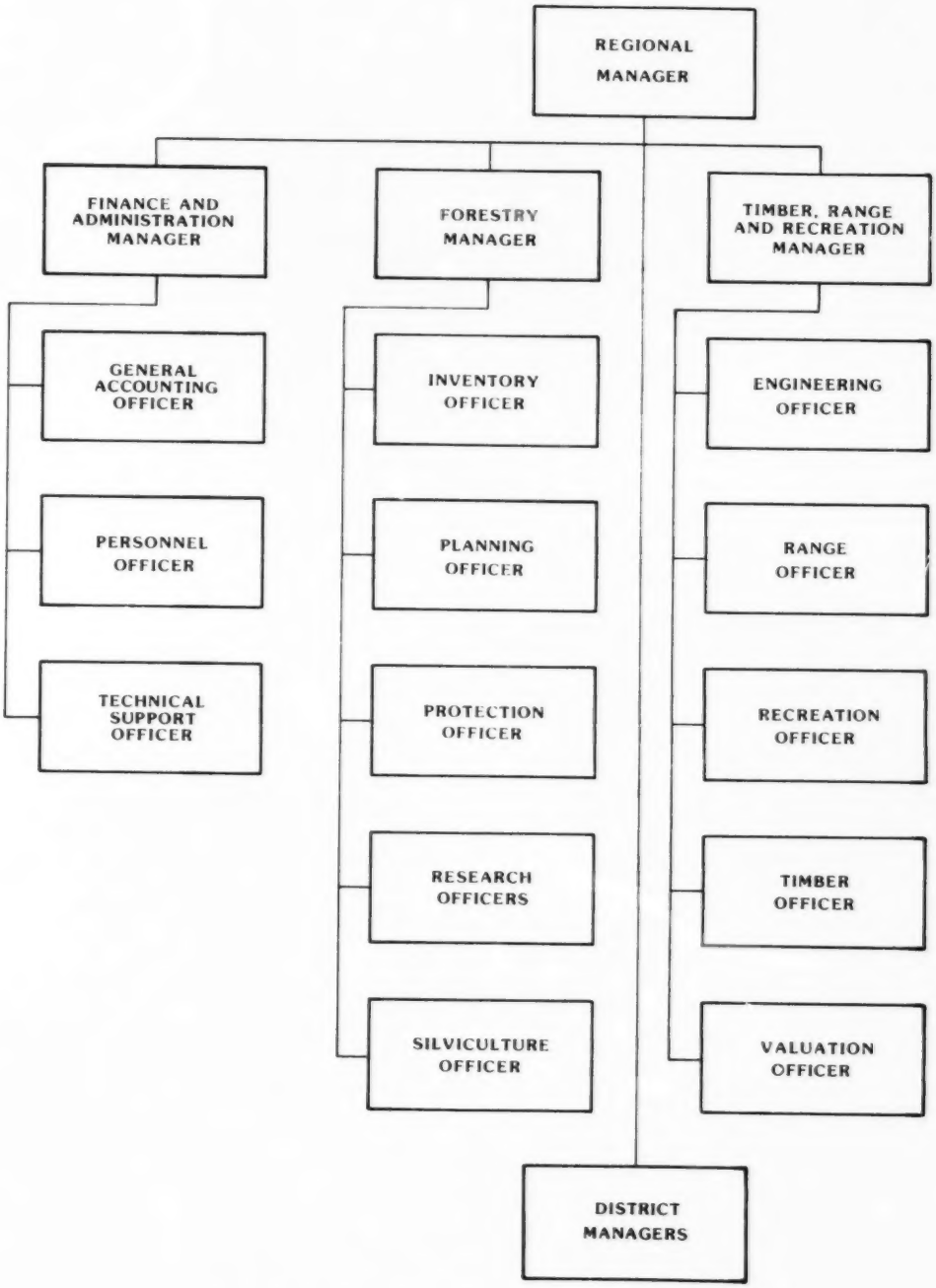


Forest Region Organization

The province is divided into six administrative units or forest regions. Each is administered from its own regional office by a regional manager. Each forest region is subdivided into forest districts which are under the direction of district managers. The organization of the regional offices is shown on page 63. Three regional staff managers provide advice and services to each regional manager and to the various district managers and field personnel. Regional office personnel are responsible for servicing, coordinating and monitoring the activities of all field personnel operating out of district offices.

The staff of each regional office develops regional programs and plans, and ensures that all policies, programs and procedures originating from ministry headquarters are administered consistently and effectively throughout the region.

Forest Region Organization



VI. Directory

(At March 31, 1986)

Ministry Headquarters

Minister

HON. J.H. HEINRICH

Executive Committee

A.C. MacPHERSON
Deputy Minister
R.J. CULLEN
Assistant Deputy Minister, Finance and Administration Division
J.R.D. CUTHBERT
Chief Forester and Assistant Deputy Minister, Forestry Division
W.C. CHESTON
Assistant Deputy Minister, Operations Division

Executive Director

(Vacant)
Legislation and Policy

Branch Directors

M.Y. MIRZA*
Engineering Branch
R.K. NATSUHARA
Financial Services Branch
L. STRINGER*
Information Services Branch
I.W. BIRCH
Internal Audit
L.W. GEDDES
Personnel Services Branch
F. HEGYI
Planning and Inventory Branch
H.G. DOERKSEN
Protection Branch
W.N. McLACHLAN
Range Management Branch
H.N. MARSHALL
Recreation Management Branch
L. ILLINGWORTH
Research Branch
C.M. JOHNSON
Silviculture Branch
J.A. BIICKERT
Strategic Studies Branch
J.G. HILL
Systems Services Branch
L.G. UNDERWOOD
Technical and Administrative Services Branch
J.J. JUHASZ
Timber Management Branch
H. WAELTI
Valuation Branch

Forest Regions and Districts

Cariboo Forest Region

J. SZAUER
Regional Manager, Williams Lake

R.J. REEVES
District Manager, Chilcotin Forest District, Alexis Creek
J. MENNING
District Manager, Horsefly Forest District, Horsefly
R.T. OSTBY
District Manager, 100 Mile House Forest District, 100 Mile House
D.G. FLINTOFT
District Manager, Quesnel Forest District, Quesnel
W.S. CARR
District Manager, Williams Lake Forest District, Williams Lake

Kamloops Forest Region

A.B. ROBINSON
Regional Manager, Kamloops

M.E. MONTEITH
District Manager, Clearwater Forest District, Clearwater
R.G. MILLER
District Manager, Kamloops Forest District, Kamloops
S.A. PEREVERZOFF
District Manager, Lillooet Forest District, Lillooet
K.A. COLLINGWOOD
District Manager, Merritt Forest District, Merritt
J.H. WENGER
District Manager, Penticton Forest District, Penticton

* Acting Capacity

J.H. LITTLE
District Manager, Salmon Arm Forest District, Salmon Arm
E.W. HEWITT
District Manager, Vernon Forest District, Vernon

Nelson Forest Region

R.R. TOZER
Regional Manager, Nelson
K.E. ARNETT
District Manager, Arrow Forest District, Castlegar
G.H. NICHOLS
District Manager, Boundary Forest District, Grand Forks
R.R. GREENFIELD
District Manager, Cranbrook Forest District, Cranbrook
D.E. GILL
District Manager, Golden Forest District, Golden
L.P. ATHERTON
District Manager, Invermere Forest District, Invermere
J.P. SEDLACK
District Manager, Kootenay Lake Forest District, Nelson
T. HARVIE
District Manager, Revelstoke Forest District, Revelstoke

Prince George Forest Region

M.J. WILKINS
Regional Manager, Prince George
T.R. GIBBS
District Manager, Dawson Creek Forest District, Dawson Creek
A.C. JOYCE
District Manager, Fort Nelson Forest District, Fort Nelson
W.E. HALL
District Manager, Fort St. James Forest District, Fort St. James
W.K. PENDERGAST
District Manager, Fort St. John Forest District, Fort St. John
C.L. NELSON
District Manager, Mackenzie Forest District, Mackenzie
S.B.R. HODDINOTT*
District Manager, McBride Forest District, McBride
R.G. TRENAMAN
District Manager, Prince George East Forest District, Prince George
K.W. MAGEE
District Manager, Prince George West Forest District, Prince George

* Acting Capacity

R.G. CLARK
District Manager, Vanderhoof Forest District, Vanderhoof

Prince Rupert Forest Region

K.J. INGRAM
Regional Manager, Smithers
G. STAHL
District Manager, Bulkley Forest District, Smithers
G.I. BOWIE
District Manager, Cassiar Forest District, Dease Lake
G.F. DODD
District Manager, Kalum Forest District, Terrace
C.D. WILLSON
District Manager, Kispiox Forest District, Hazelton
A.R. PEMENT
District Manager, Lakes Forest District, Burns Lake
D.A. AMONSON
District Manager, Morice Forest District, Houston
J.G. WARD
District Manager, North Coast Forest District, Prince Rupert

Vancouver Forest Region

D.T. GRANT
Regional Manager, Vancouver
D.E. deHART
District Manager, Campbell River Forest District, Campbell River
J.H. CARRADICE
District Manager, Chilliwack Forest District, Chilliwack
T.A. WALKER
District Manager, Duncan Forest District, Duncan
D.B. DOERKSEN
District Manager, Maple Ridge Forest District, Maple Ridge
R.W. THOMAS
District Manager, Mid-Coast Forest District, Bella Coola
R.A. CAMPBELL
District Manager, Port Alberni Forest Region, Port Alberni
W.S. MILLWARD
District Manager, Port McNeill Forest District, Port McNeill
J.B. MOUNTAIN
District Manager, Powell River Forest District, Powell River
B.L. CUSTANCE
District Manager, Sechelt Forest District, Sechelt
N.P. GILGAN
District Manager, Squamish Forest District, Squamish
T.A. DYER
District Manager, Queen Charlotte Forest District, Queen Charlotte City